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Abstract

The second volume of the report by the Children's Museum of Boston on the development of MATCH Boxes (Materials and Activities for Teachers and Children) contains materials related to the evaluation of these multi-media kits. The MATCH Boxes, designed for use by a teacher with 30 children for two to three weeks, covered 16 different topics, the majority of which relate to the social sciences. The boxes were developed in three groups, each one building on techniques learned with the previous group. The criteria which were evolved to select an idea to be used for a box are listed. Sample sections from several of the teacher's guides which accompanied each box are included. Examples are given of the tabulated data which was collected from the teachers on a daily log and a final evaluation sheet and from observers sent to view the use of the materials in the classroom. Samples of the evaluation forms used by the teachers and independent observers in this testing stage are reproduced. Summaries of the reports on each of the 16 boxes indicate that they were at least acceptable as to workability, success in reaching stated aims, teacher acceptance, and student response. Suggestions on specific modifications for each box were made, and the possibility of commercial production was estimated. This

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FINAL REPORT
Project No. 5-0710
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VOLUME II APPENDICES

MATERIALS AND ACTIVITIES FOR TEACHERS AND CHILDREN: A PROJECT TO DEVELOP AND EVALUATE MULTI-MEDIA KITS FOR ELEMENTARY SCHOOLS

May 1968

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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Frederick H. Kresse
The Children's Museum
May 1968

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APPENDIX A
Criteria List

CRITERIA

SECOND GENERATION MATCH BOXES

Children's Museum -- Boston, Massachusetts

July 8, 1965

BOX CRITERIA

1. Relation to the Curriculum.
    a. Topic reflects new curriculum trends.
    b. Topic does not duplicate what others are doing.
    c. Topic occurs in 50% or more of existing curricula.
    d. Topic can be woven into the curriculum in a variety of ways.

2. Relation to the Teacher.
    a. The material will fit into a two-week period.
    b. The topic and box have classroom practicality.
    c. The amount and difficulty of teacher preparation is relatively low.
    d. Topic has apparent teacher appeal.
    e. Teacher does not have to learn how to operate a lot of equipment.

3. Media Characteristics.
    a. There is multi-media potential.
    b. Media are not generally available to the teacher.
    c. The media are obtainable and/or attainable.
    d. The media imply better learning.
    e. The media imply more efficient teaching.
    f. The media are largely real and authentic.
    g. The media do not demand a lot of verbal accompaniment.
    h. The media offer rich associations.

4. Activity Characteristics
    a. The topic lends itself to activities by the children.
    b. These activities are feasible and relatively uncontrived.

c. The activities offer intrinsic rewards for the children.
d. The activities offer intrinsic rewards for the teacher.
e. The activities draw teacher and class into a more human relationship
f. The activities offer the children various avenues of response, and the teacher signs of what and how the children are learning.
g. The activities reflect an over-all approach.
h. Activities involve all the children.

5. The objectives.

   a. Can be stated in terms of learning outcomes, i.e., concepts, skills, and attitudes which the children can carry away with them.
   b. Reflect both teacher and pupil behavior.

6. Staffing.

   a. Co-leaders with desire, interests, and experience are available.
   b. The required kinds of specialists and teachers are available.

7. Loanability.

   a. The box can be made durable.
   b. The box can be made portable.
   c. Maintenance and operation costs seem reasonable.
   d. Little or no accessory equipment is required.

8. Feasibility.

   a. Box can be developed for the amount budgeted.
   b. Box can be developed in the time available.

9. Elegance.

   a. As a whole the box rings true. There is an alignment between its objectives, media and activities. The conception is believable.
   b. The topic is a real one--not a pseudo-topic.
   c. The over-all conception--topic, media and approach--is simple, not contrived or cumbersome.
   d. The box is meaningful and worthwhile.
   e. The conception furthers the project as a whole by extending our knowledge of some principle, technique, etc., or by probing new areas.
   f. It can be done with the available time, money and people.
   g. The conception conserves project experience.
   h. It sounds like fun.

PROJECT CRITERIA

As a group the second generation boxes should meet these criteria:

1. They should bear a strong, recognizable relationship to the first generation boxes. This may be in terms of subject matter, approach, etc. They should represent a systematic extension of our first year's work.

2. They should have commercial possibilities.

3. Social studies topics should predominate.

4. Reflect variations in these dimensions:

    simplicity - complexity
    expensive - inexpensive
    conservative - exotic
    structured - unstructured
    multi-media - multi-activity

5. Explore a variety of principles and/or aspects of particular principles.

6. Reflect, about equally, existing conditions and future trends.

APPENDIX B
Evaluation Forms

These forms represent major forms used in the three evaluations.

B-1 Letter to Evaluation Teachers
This letter explains the evaluation strategy and the teacher's and observer's roles.

B-2 Teacher's Daily Lesson Comments - First Generation
B-3 Teacher's Daily Log - Second Generation
B-4 Teacher's Daily Log - Third Generation
Teachers recorded their daily reactions to lessons in these forms. There is a trend here from the tightly organized questions of the First Generation to the simpler check list of the Second Generation to an open-ended log during the Third.

B-5 Teacher's Final Appraisal - Second Generation
A general form was used for all Boxes in the Second Generation. This form also typifies the final form used for all First Generation Boxes.

B-6 Teacher's Final Appraisal - Third Generation, MATCH Box Press
In the Third Generation, TFA's were designed specifically for each Box. Though this gave us detailed information about the individual Boxes, it did not allow us to make cross-Box comparisons as we did in the Second Generation.

B-7 MATCH Box Observer Form - First Generation
Observer's comments in the First Generation were focused on the teacher's behavior and the classroom set-up, and how the lessons went. They were meant to be correlated with data from the teacher to help us assess that data.

B-8 Notes for MATCH Box Observers - Third Generation
In the Second and Third Generation, observers were given guide lines on what to look for, and then asked to write their impressions of individual lessons and the Box as a whole.

APPENDIX B-
Evaluation Forms
Letter to Teachers

Dear

We understand that you have agreed to evaluate one of our newly completed MATCH Boxes in your classroom. We want to thank you for accepting this offer. By participating in the evaluation, you are contributing significantly to the development of and refinement of these materials which will eventually be revised in light of our overall evaluation findings.

In __________, 28 teachers will be evaluating four copies of seven Boxes: HOUSES, ANIMAL CAMOUFLAGE, NETSILIK ESKIMOS, MUSICAL SOUNDS AND SHAPES, JAPANESE FAMILY 1966, ROCKS, and MEDIEVAL PEOPLE. In addition to __________, the MATCH Boxes will be evaluated in four other Boston area school systems and in Salinas, California.

You will be receiving the Box entitled __________. It will be delivered to you at your school on the afternoon of Friday, the ____________, between 1 PM and 3 PM by someone from the Museum. This person will be your "contact" during the two weeks of the evaluation. He or she will answer questions, provide advice, and help you over any difficulties. The same person will also visit your classroom 3 or 4 times during the two weeks to observe MATCH Box lessons.

The term MATCH stands for Materials and Activities for Teachers and CHildren. Though the Boxes are very individual and distinct, they are basically kits of real objects and other materials, equipment, supplies, and activities all closely related to a specific topic and designed to work together as a unit. Lesson ideas, background facts, procedures, and other information pertaining to the materials and their use are expressed in a Teacher's Guide which acts as a key to the entire Box. You need not prepare yourself extensively for teaching this unit beforehand as the information you will need is included in the Guide.

The Boxes have been designed for fairly intensive use over two weeks, and the Teacher's Guides outline 8-10 lesson periods. In putting these 10 or so lessons into your schedule, please try to schedule them as much as possible at the same time each day and at a time that is different from that of the other evaluation teachers in your school. This helps the observer who will cover a number of different classrooms in a day.

You will, of course, have the weekend to look over your Box. Then, on Monday, ________, the evaluation period will begin--ending on Friday, __________. To record your experiences and reactions to the materials and lessons you will have a daily form to fill in. The form will be quite brief and convenient, and it is important that it be filled in regularly while your impressions are still fresh.

At the end of the evaluation period you will be asked to fill in a somewhat longer questionnaire designed to get your reactions to the Box as a whole, and to the two weeks in general. About two weeks after the evaluation, when you have had a chance to get back to your regular program, we hope to organize a general meeting where you can share your opinions and experiences with the other evaluation teachers and us.

I hope this letter answers the main questions you have at this point. If there are others, please call us at the Museum: JA4-1551 or 1552. Otherwise, we will be seeing you on the ________. Again, thank you for your willingness to help make these materials really good.

Sincerely,

Sharon Williamson
Evaluation Coordinator

Fred H. Kresse
Project Director

APPENDIX B-2
Evaluation Forms
First Generation

MATCH Box Project
Evaluation - Phase I

The Children's Museum
60 Burroughs Street
Boston, Mass. 02130

Teacher's Daily Lesson Comments

We would like to have you fill in one of these forms each day that you use the MATCH Box. Please try to do it while your impressions of the day's lesson are still fresh and vivid. Where we have not allowed enough space for a complete answer, please continue on the back of the page.

Which day of MATCH Box use is this?	1st	2nd	3rd	4th	5th
(Circle the appropriate number)	6th	7th	8th	9th	10th

Name ____________________

School ____________________

Town ____________________

Name of MATCH Box ____________

Name of Lesson ______________

Date of Lesson ______________

GENERAL IMPRESSIONS

1. In general how did you feel about today's lesson? Did you like it? Did your class enjoy it?

2. In terms of the objectives, do you think that this lesson was:

   Unsuccessful________________
   Moderately Successful________
   Very Successful______________

   Please tell us your reasons.

ABOUT TODAY'S MATERIALS

3. Would this lesson be improved if any materials were added, modified or left out?

   yes _____ no _____

   Add:

   Modify:

   Leave out:

4. Did the class ask questions or make comments about specific items used in the lesson? Please list these below. Include, if you will, questions that you or other teachers may have had.

Item	Question or Comment	By Whom

ABOUT TODAY'S PROCEDURES

5. Did you have any difficulties either in preparing for or in conducting the lesson? Consider such things as the time it took to prepare or conduct the lesson, whether the lesson plan was clear, whether facilities were adequate, etc.

   yes _____ no _____

   If yes, please mention these difficulties and any suggestions for overcoming them.

a. Problems in preparing for today's lesson:

b. Problems in conducting today's lesson:

c. Suggestions for overcoming these problems:

6. Were you satisfied that you knew what the class was actually learning without the use of special tests?

yes_____ no_____

CLASS RESPONSE

7. Please describe how the class responded to the lesson. Wherever possible give specific examples to indicate:

   a. Their level of interest

   b. the number of questions they raised

   c. their level of excitement and activity

   d. any confusion they may have shown

   e. any special insights they may have gained.

MATCH Box Project
Evaluation II
TDL Sept., 1966

TEACHERS DAILY LOG

Welcome to the MATCH Box development team! We are counting heavily on your experience and insight to tell us what we need to know to improve this Box for future teachers and children. The Box will be revised in light of the findings from you and other teachers who are evaluating it. The more problems you identify and help us solve, the better our revisions will be. We hope you will be completely candid in your comments.

This booklet contains a series of questionnaires that are to be filled in each day, regardless of whether you use the MATCH Box. The daily questions are brief and many can simply be answered with a check. Bound between the daily forms are blank pages on which to record unique incidents, your personal impressions and reactions, or perhaps elaborations of the answers you have given on the daily form. If, in one day, you have more than one session with the Box - no matter how brief - fill out a separate daily form for each session.

Please fill out each daily form completely as soon as you can after each lesson. The longer you wait, the harder it will be.

After your last lesson you will, in addition, be asked to fill out a longer questionnaire regarding your appraisal of the entire MATCH Box experience.

As you know, from time to time a Museum observer will be coming to your class. On the first school day after the evaluation period your observer will pick up this Daily Log Book, your Final Questionnaire and the MATCH Box itself.

Good luck! We hope you thoroughly enjoy the next two weeks with your new MATCH Box.

Date: ____________

Length of lesson _____min.

A. Name(s) of lesson or parts of lesson covered:

(If you did not use the Box today, please indicate in the space above the reason why, i.e. holiday, conference, testing, substitute teacher, assembly, etc. If you used the Box more than once today, record the second session on a spare sheet at the back of this book and mark it clearly).

How would you rate the OVERALL SUCCESS of this lesson?

__ very low   __ low   __ average   __ high   __ very high

Did you set out to conduct this lesson(s) essentially as described in the Guide? __ yes, __ no. If you modified the lesson, please describe the changes and your reasons for making them.

Did today's lesson go pretty much as you intended? __ yes, __ no. Describe any difficulties or surprises.

What did you hope the children would learn from this lesson? Did they?

From what you have seen of this Box so far, would you want to use it again next year? __ yes, __ no, __ maybe.

B. Now let's get specific about the equipment and materials. Please check off as many of the following statements and alternatives as reflect your experience with this lesson.

__ Directions for using materials and equipment unclear. ____________________

__ Materials did not work well when used by __ whole class, __ small groups, __ individuals.

____Not enough background information on materials.

____Too many materials to: ____ prepare, ____clean up, ____ distribute, ____keep track of, ____store.

____Not enough materials to: begin lesson ____, go around to children ____, complete the lesson ____, satisfy the children's interest ____.

____Written information contained ____inaccuracies, ____distortions, ____important omissions, ____unclear parts.

____Technical problems. What did not work well: Movie hard to see? trumpet would not reassemble? things too fragile? rock wouldn't harden?

____Materials not suited to children's ____motor skills, ____ reading level, ____conceptual abilities.

____Materials not interesting to ____most children, ____to boys, ____to girls, ____ to teacher.

____Materials distasteful or embarrasing to some children.

____Classroom facilities lacking, such as ____window blinds, ____wall plugs, ____sink, ____display space, ____ moveable desks.

____Materials arrived damaged.

____Materials worked well.

____Other problems with materials or equipment:

Please look back over your replies to make sure we will understand what specific materials you had problems with.

C. Now, shift your thinking to the lesson as a whole. Again, please check all the statements and alternatives that apply to your experience with this lesson.

____Difficult to adapt the lesson to my curriculum.

____Children not well prepared by earlier lessons.

____Procedures not clear ____to me, ____to children.

____Difficult to: ____organize the children, ____keep them going, ____wind up the lesson.

____The performance of some children surprised me.

____Special interest: This lesson might work especially well with ____boys, ____girls, ____advanced students, ____ slow students, ____verbal children, ____non-verbal children, ____younger ones, ____older ones, ____active children, ____quiet children.

__ The lesson seemed to engage __ most children, __ some children, __ only a few children.

__ Activity was too disruptive of classroom order.

__ At the beginning of the lesson class interest was __ high, __ average, __ low.

__ During the lesson class interest __ remained at the same level, __ rose, __ fell.

__ Lesson tried to cover __ too much, __ too little.

__ Hard to sense what the children were learning.

__ I have never taught lessons with this approach before, but felt it went well.

__ I felt uncomfortable teaching a lesson with this approach.

__ I felt I did not have enough background information to teach this lesson.

__ I felt I knew what I was doing.

__ I got personal pleasure from teaching this lesson.

__ Children seemed to particularly enjoy this lesson. ________
____

Of the problems you have pointed out for us, which needs changing most?

Again, please glance over your replies and insert a word wherever it may be needed for us to understand what your answer refers to.

We welcome any comments you may have concerning this lesson, the Box or this questionnaire. Please put them on this page making sure they go with the questionnaire on the facing page.

Use this space also to expand any of your answers to the questions on the daily form.

And if there were particularly interesting reactions from the children or teaching highlights for you, please jot these down for us.

Date: ____________________

APPENDIX B-4
Evaluation Forms
Third Generation

Name: ________________	Box Title ____________________
Grade: ________________	Evaluation Period ________ to ________
School: ________________	
Town: ________________	MBP Evaluation III 1967-8

In previous evaluations we have found that teachers often expressed themselves in notes and comments, and that these were much more helpful to us than long lists of check marks on daily questionnaires.

This little booklet, therefore is for your comments. It is not a requirement that you use it, but when you have reactions and suggestions or criticisms to report, we'd appreciate your putting them in this log.

Please fill in the top of each page so we won't lose track of things. We'd be happy to have your comments on:

> Your overall impression of the lesson or activity and how it went.
>
> Your reactions to the materials, their durability, adequacy, relevance, etc.
>
> How the children responded to a particular activity or item in the Box.
>
> Difficulties of any kind that you or the children encountered.
>
> Ideas for improving the lesson or activities or materials.

In fact, we welcome your thoughts on any aspect of your experience with a MATCH Box.

Thank you.

Name: ____________________

Grade: ____________________

School: ____________________

Town: ____________________

Box Title: ____________________

Activity: ____________________

____

Date: __________

APPENDIX
Evaluation Forms
Second Generation

MATCH Box Project
Evaluation II
TFA Oct. 21, 1966

Box: ____________________ No: ______

Teacher: ________________ Gr: ______

School: __________ Town: ____________

Observer: ________________

TEACHER FINAL APPRAISAL

Well, now you have finished using the MATCH Box. First let us say thank you. We hope you enjoyed the experience, but even if you didn't, it's over and you can be assured of one thing - we very much appreciate the work that you and the children have done.

There is one difficult task remaining - this questionnaire. Some of the questions are straightforward, can be answered in a jiffy, and are about what you might expect as a way of assessing the whole MATCH Box experience. But some of the questions will be difficult to answer. They may seem vague and even personal. If so, it is because we are groping to understand just what role materials can and do play in the teaching/learning process. You are one of the few teachers who has actually taught with a complete MATCH Box, and while the experience is still vivid for you we want to tap as many of your reactions and insights as we can.

This questionnaire will take about two hours to fill out. Try to do it at a quiet time within a day after your last lesson. In most cases this will be on the weekend. The Box, your log of daily lesson questionnaires and this final questionnaire will all be picked up at the same time - on the Monday following the evaluation period.

SECTION A. EFFECT ON THE TEACHER. The following questions concerning your personal experience with the Box.

1. Please describe how the Box affected you. e.g., Did you enjoy using it? Did the experience significantly alter your interest in using a variety of instructional materials or in the subject itself? Did some aspect of the experience stand out for you? Was there anything that you found surprising or annoying?

2. Did you: __ generally feel that you knew what you were doing and why?
   or __ that you were simply carrying out a mechanical set of procedures

3. Did you ever crave a test in order to tell you what the children were learning? __ yes __ no. Please explain.

4. In what ways, if any, did your relationship with the children change while you were using the Box.

5. What lesson did you like best? Why?

6. What lesson did you like least? Why?

7. How do you like teaching with the MATCH Box compared to the usual materials and methods you use to teach this topic or similar ones.

SECTION B. EFFECT ON THE CHILDREN.

1. Illustrate for us what your class got out of the Box experience by describing what happened with one or two particular children. Please use quotations and examples to show: what they really learned; whether their attitude toward the subject, or you, or other children was affected; how their interest may have shifted; how they used free time; what objects or activities they particularly enjoyed; what ideas they had; how their participation was affected; and, of course, what difficulties or confusions they may have experienced.

2. a. Would you say the children themselves know that they have learned something? __ yes __ no.

b. Do they know what they learned? ___ yes ___ no.

Please say a word about any signs they may have given you to indicate this awareness.

3. Did you notice any interesting connections between the things and activities in the Box and the children's verbal behavior?

4. Compare the way your class responds to the MATCH Box to the way it generally responds to other similar units in your curriculum. Check the most appropriate reply to each item. Construct items of your own, if you wish, at the end of the list.

In general while using the MATCH Box -	more than usual	same as usual	less than usual
a. Class interest in the subject was	___	___	___
b. Apparent learning of subject matter was	___	___	___
c. Spontaneous questions or ideas generated were	___	___	___
d. The less verbal children were involved	___	___	___
e. The children liked what they were doing	___	___	___
f. The number of children involved was at any one time	___	___	___
g. Attentiveness was	___	___	___

5. Please describe any instances where the children showed a significant new understanding or insight as a result of using the Box materials.

6. a. What lesson would you say appealed most to the children? Why?

b. From which one did they seem to learn the most?

SECTION C: OTHER EFFECTS

Please describe any immediate effects the Box may have had on things or people outside of its regular use, e.g., Did children bring things in from home? Did other teachers or the principal become involved in it? Did you hear anything from parents? Are there any techniques suggested by the Box or invented by you as a result of using the Box which you plan to use in other subjects?

SECTION D: THE BOX IN USE.

The next questions pertain to the operation of actually using the Box. Some questions are similar to the ones asked on the daily forms. Please answer these from the point of view of your overall experience.

1. In terms of OVERALL SUCCESS, how would you characterize your experience with the Box?

   very   very
   ___ low   ___ low   ___ average   ___ high   ___ high

2. Did the MATCH Box seem to ___ function as a unit
   or ___ like a disorganized set of parts

3. Was there anything - idea, or procedure, or reading level of the material - with which you or the children had GENERAL difficulty?

4. Here are some DIFFICULTIES you may have encountered with the MATERIALS. Please check the ones you experienced and give a brief explanation at the right.

   ___ difficulty using such a variety of materials

   ___ difficulty finding, identifying, or keeping track of items

   ___ difficulty carrying the Box, unloading it, or finding a place for it in my room

   ___ difficulty repacking the Box

   ___ other

5. Please rate how suitable the MATCH Box was for you and your class. Fill in the blank between the two parts of each sentence with one of these phrases, "poorly suited", "suited", or "well suited". Give a word of explanation for all the "poorly suited" replies and as many of the others as seem to require it.

   a. The general level of difficulty of the material was ________ to the level of my class

   b. The general organization of the Box was ________ to efficient learning

   c. The amount of daily preparation was ________ to the time I could normally devote to it

   d. Once familiar with the Box, I think the amount of preparation would be ________ to the time I could normally devote to it

   e. In terms of how they worked together, the MATERIALS and ACTIVITIES were ________ to each other

   f. The subject-matter of the Box is ________ to my curriculum

   g. The period of 2 weeks is ________ to a realistic use of the Box. One should have ___ wks.

   h. If other curriculum committments were not a factor, this Box would be ________ for use in 2 weeks. Why? ______________

   i. The teaching approach suggested in the Teacher's Guide was ________ to my regular teaching style

6. Did you find that the materials - in particular the objects - could ___ stand on their own or ___ required a lot of explanation.

7. Please comment on the usefulness of the Teacher's Guide. Consider organization, adequacy of information, amount of detail, and the spirit of the thing.

8. How far ahead of the Box would you like to receive the Guide?

SECTION E: RECOMMENDED CHANGES.

Please tell us how you would change the Box. What would you omit or add? How would you alter the approach or lesson sequence? How could it better suit your curriculum?

SECTION F: GENERAL. Now, these questions don't seem to fall into a neat category, but we are very interested in your answers to them, so please answer each one on its own terms.

1. Please comment on whether the materials in this Box and the approach seem appropriate to what the Box is trying to say.
2. From an educational standpoint would you say that the learning outcome for the children is worth the time and effort required to use this Box? __ yes __ no.
3. If you see the MATCH Box as a different way of teaching and learning when compared to your normal approach and technique, please tell us what the difference is?
4. How do you personally feel about this relatively concentrated treatment of a subject as compared to the common practice of treating this much content over a longer time?
5. Would you like to see the curriculum built around more units like this? Say 10 a year. __ yes __ no.
6. For the amount of time spent do you think this approach to teaching makes learning easier, better, more fun, etc., compared to the same amount of time spent with more traditional techniques?
7. If available, would you use this Box again? __ yes __ no.
8. Finally, would you comment on the evaluation itself, how it was conducted, whether it was what you expected, how you felt about the observer and these seemingly endless questionnaires.

If you made it this far, you are unquestionably a HERO of the Order of Staunch Teachers and we salute you.

TEACHER'S FINAL APPRAISAL

Name: ____________________ Box Title MATCH Box Press

Grade: ____________________ Evaluation Period ________ to ________

School: ____________________ ____________________________

Town: ____________________ MBP Evaluation III 1967-8

You have finished using the MATCH Box. First let us say thank you for trying out these materials and contributing to their evaluation. We realize it took time and willingness.

One task remains - filling out this questionnaire. It, too, will take time and care but it will provide us with valuable and systematic information about the MATCH Box, how it worked, and how it can be improved.

Some of the questions will be difficult to answer. This is because we are groping not only for ways of assessing these materials, but also for a general understanding of the role that materials can play in the teaching/learning process. You are one of the few teachers to have ever used this Box, and while the experience is still vivid, we want to tap as many of your reactions and insights as we can.

Please make your answers specific and frank.

Choose some quiet time to fill out this questionnaire and turn it in with the Box and your Daily Log. In most cases you will have a weekend on which to do this.

Thank you very much.

SECTION A - Your Personal Experience with the Materials

1. Please describe briefly your general impression of the MATCH Box in your classroom; did you enjoy it, was there any especially annoying feature? Would you have preferred to have it at another time, for a longer or a shorter time? Was your role as publisher clear?

2. What do you think the major outcome of this experience was for the children?

3. Did you notice any significant changes in your relationship with the children, or in their relationships with each other, while you were using the Box?

4. Please rate the degree of relevance this experience has to the curriculum you provide for your children: ___very low, ___low, ___ average, ___high, ___very high.

5. Please rate the amount of personal satisfaction you derived from using this MATCH Box: ___very low, ___low, ___average, ___high, ___ very high.

6. Was the division of the three week period into 1 week for writing and two weeks for printing reasonable? If you would have preferred another arrangement please explain why.

7. Please estimate the total number of class hours that were devoted to this Box during the three weeks.

8. Please estimate the total amount of time you devoted to preparation - and filling in the log and questionnaires.

9. Were you able to help everyone who needed it without going out of your mind?

10. Please comment on the usefulness of the Teacher's Guide. Were the procedures outlined thoroughly enough?

SECTION B - Children's Experience with the Materials

1. Illustrate for us what your class got out of the MATCH Box experience by describing what happened with one or two particular children.

2. Did the children take their roles as authors and as the MATCH Box Press staff seriously?

3. Why did the class choose poetry?

4. Was the general reaction of the class to writing something that they would print any different than the reaction to a regular writing assignment?

5. Do you think the box experience made children more aware of the human effort behind the printed word? Do they examine books more closely? Look for dedication, illustrations, etc.?

6. Did department managers actually serve a coordinating function between Departments? Between you and the Departments?

7. Did you find the manager organization a useful one?

8. Could the small groups organize themselves internally so that they could function effectively (i.e. make decisions, take turns, help each other?). Were they able to do this on their own or did they need a lot of help from you?

9. Did the instructions in the handbooks and instructions cards structure the children's performance so that they knew what they were supposed to do and could do it?

10. For how long was the handbook a useful guide for the children? (i.e. did they abandon it after a few days and work successfully without it? Abandon it and come to you with questions it would have answered for them? Use it throughout to answer questions as they arose?)

    If you have any specific ideas on how the children's instructions could be made more clear we would appreciate hearing them.

11. Was the work load distributed fairly evenly among the departments or were there times when some children or groups didn't have enough or too much to do? If this happened please explain in which groups or departments difficulties arose.

SECTION C

Below are some specific questions referring to materials and departmental operations. If we had asked all the questions there are to be asked the questionnaire would have gone on forever. Please feel free to add any comments or difficulties that you may have had.

FILM

1. Did seeing how a real author went about getting ideas and writing his book have any effect on the children when they were writing?

2. Did the children see the parallels between the way they published their book and the way Pagoo was published?

3. Did you feel that it was appropriate to show the film a second time? If so, on what occasion.

KEEPTRAK

1. Were you able to arrange the book, fill in the dummy and transfer its information to Keeptrak without difficulty. If not, why?

2. Did Keeptrak help keep production running smoothly?

3. Were the children able to use it without your help?

INK

1. Did the ink dry too fast, not fast enough? Wash off easily?

ART DEPT.

1. Did you or the children supplement the materials in the Art Dept. container? If so, with what?

2. Did they try to print in other ways - linoleum, silk screen, etc.?

3. Did the Art teacher or supervisor become involved? If so, was this out of necessity or as a natural outgrowth of the project?

COMPOSING DEPT.

1. Did operations ever become bogged down because there wasn't enough type? If this was a major disturbance, can you give us a clue as to how much more type would be needed (i.e. 10%, 20%, etc.)?

2. Do you think there could have been less type? How much?

3. Did the groups on their own take care of their things (type, brayers, cleaning brushes, etc.)? Did they take "professional" pride in the less glamorous aspects of their jobs?

4. How long did it take the average child to become familiar with reading the type upside down and backwards?

5. Should there have been more practice materials, i.e., a whole page of upside down and backwards pringint to practice reading?

PRINTING DEPARTMENT

1. Did the press print evenly consistently?

2. Did the gauge pins break or get bent out of shape?

3. Were the children able to get an assembly line going by themselves?

4. Did they seem to take pride in the quality of their printing?

5. Did you have space to leave the print shop set up continuously?

REPACKING

1. Were the groups able to check and repack their materials without too much help from you? If not, what were the problems?

SECTION D - THE ULTIMATE QUESTIONS

1. Did the box sustain class interest for three weeks. If not, did interest go down and stay down, or go up and down etc.?
2. Were you and/or the children pleased with the outcome? In other words, was it worth it?
3. Would you like to use the box again with a new class? If yes, do you think you would operate essentially the same way or would you modify or change the methods or product?
4. Would you like to use the box again with the same class? If yes, do you think you would operate essentially the same way or would you modify or change the methods or product?

When you send a copy of your book back to us perhaps you might refer to pages in it which bring interesting anecdotes to mind and write a line about them to us.

APPENDIX B-7
Evaluation Forms
First Generation

MATCH Box Project
Evaluation - Phase I

The Children's Museum
60 Burroughs Street
Boston, Mass. 02130

MATCH BOX OBSERVER FORM

NOTE: This form is in two parts. The first contains questions that are answered by you once. Questions in IA are to be answered after the first observation, questions in IB are to be answered after the last observation. Questions in the second section are to be answered after each observation. Three forms are provided.

Box:

Observer:

School:

Grade:

Town:

Teacher:

This is observation: 1 2 3 other

Date:

Day of evaluation:	1st	2nd	3rd	4th	5th
	6th	7th	8th	9th	10th

Name of the lesson being observed:

I. QUESTIONS TO BE ANSWERED ONCE

A. AFTER FIRST OBSERVATION

THE PHYSICAL ENVIRONMENT

1. Approximate age of building: Built in 19th century _____, 1900-1920, ______ 1920-1940______ 1940-1960 ______

2. Number of children in class: less than 20 _____ 20-30 _______ 30-40 _______ more than 40 ________

3. Are there movable desks in the classroom? yes ____ no ____

4. If yes, are they rearranged for MATCH Boxes activities? yes _____ no ________

5. Show how the classroom wall space is used by estimating and labeling the portion given to chalk board, tack board display, windows, etc. Mark sections off on the line below. (A-B equals all the wall and window space.)

   A____B
   0% 100%

6. Is there water available in the room? yes ______ no ______

7. On the scale below show the relative diversity of teaching materials present in the room--such things as: posters, models, maps, globes, various levels of books, pets, experiments, projects, etc. Note diversity not simply the amount of material.

   ____
   (low diversity) (high diversity)

YOUR IMPRESSION OF THE CLASSROOM - Taking the above items into account along with any others describe your impressions of this classroom.

B. AFTER FINAL OBSERVATION

1. Have you observed any change in the teacher's behavior toward the media? yes _______ no _________

2. Have you observed any changes in the interest level of the class? yes _______ no _________

3. If yes, was it up or down? up _______ down ________

4. Describe any other trends you might have observed in the classroom.

5. Indicate about how closely the teacher came to using the box as intended by the designers.

not at all as intended

6. If the teacher did not use the box as intended can you say why this was so?

7. Were the lessons feasible within the limitations imposed by the facilities and time available?

8. Indicate how suitable you thought the contents of the box were for this grade level.

BELOW AVERAGE ABOVE

9. Compare what you observed with the statement of purpose contained in the teachers guide. Did this box do what its designers said it would?

10. Were the media employed in this box appropriate for their use in this box?

11. Did the media used in this box ever seem to introduce distortion or irrelevant information?

12. Did the media seem to interact effectively?

13. In general did there seem to be an alignment of objects, activities and media?

14. In general did the activities that you observed seem to work?

TEACHER'S ROLE IN THE CLASS

15. Which of the following statements comes closest to describing the teacher's role? (Circle a, b, c, or d)

    a. The teacher's control of her class is such that the children do not question her authority. Children's comments are given only passing notice.

    b. The teacher does not expect blind obedience. She is polite in recognizing the comments of her class. She often explains the reasons for her behavior.

    c. The teacher appears to serve as a moderator stimulating the class to action. She asks opinions, stimulates discussion and generally encourages the class to reach its own decisions.

d. If none of these fit try to describe the teachers role.

16. Teacher was:

a. supportive-teacher's behavior is generally encouraging. She tends to promote children's self-confidence.

b. corrective-teacher's behavior directed toward correcting content of children's behavior.

c. punitive-teacher's behavior tends to punish or reform.

d. If none of these fit try to describe the teacher's behavior.

II. TO BE ANSWERED AT EACH OBSERVATION

A. USE OF THE MATCH BOX IN THE CLASSROOM

1. Where was the MATCH Box at the beginning of the lesson? Describe its location and arrangement. For example it might be closed and under the teacher's desk, open and on static display or available for the children's perusal.

2. How did the children and materials finally get together? For example were things passed around by the teacher or by selected children, did the children pick things up as they were needed? NOTE: Different lessons will require somewhat different ways of distribution, take this into account in your description.

3. About how long did it take the teacher to prepare and distribute the materials for today's lesson? about _______minutes.

4. When the children first got their hands on the materials what kinds of things did they do? Pay attention especially to behavior that seems suggested by the objects but not necessarily suggested to us. For example they might put pots on the heads of statues or throw corn at each other, clean their ears with a strigil etc.

5. What did the children say to each other and the teacher when first encountering the objects today? Look for evidence of the materials suggesting things to the children that we may not have recognized.

6. Describe what happens to the MATCH Box at the close of the lesson. How is it put away (if it is) where is it placed, etc?

B. TEACHER'S BEHAVIOR

1. "Answer-pulling", the teacher appears to have some specific RIGHT ANSWER in mind which she is coaxing out of the class.
    a. How much answer-pulling does the teacher do?
    none ________ very much __________
    b. How much of this seems justified? none _______ all ______.

2. "Hat-passing", a variation of answer-pulling. This is where the teacher is looking for the RIGHT ANSWER and she will pass from one child to another searching for it. No effort is made to develop an idea with a single child.
    a. How much hat-passing does the teacher do? none ___ a lot ___
    b. Does this MATCH Box promote hat-passing? yes ___ no ___
    c. If no, do you think it inhibits hat-passing? yes ___ no ____

3. How did the teacher react today to questions for which she had no answer? Admitted ignorance _____, referred child to media _____, went to media herself _____, consulted some authority (such as encyclopedia or Teacher's Guide)_____, faked it ____, other (explain) _____.

4. What proportion of today's lesson was spent in review? If today is the first lesson review will probably consist of reference to topics which the class has previously studied. ____________________
0% 100%

5. Estimate the proportion of today's lesson spent in telling the class what they were going to learn today or in the next few days.

____
0% 100%

6. Indicate on the scale the point in today's lesson when the teacher stopped talking and the children were given the objects.

____
beginning end

7. What percentage of the time was the teacher talking? about ___%.

8. What would have been adequate? about _____%.

9. Once started did the lesson proceed smoothly or were there frequent hang-ups? smoothly _____ hang-ups _____

10. Describe one hang-up.

C. CLASS INTEREST

1. Today, was there evidence of much excitement on the children's part? yes ____ no ____

2. If yes, did the teacher seem at all disturbed by the children's excitement? yes ____ no ____

3. Estimate what proportion of the discussion was suggested by the class: ______________________________
   0% 100%

4. Estimate how much of the verbal interchange was from student to student. ______________________________
   0% 100%

5. Estimate and label what percentage of the class appeared attentive to the discussion. Be sure to take into account children who are not talking or being talked to.
   ______________________________ at the beginning of the lesson
   0% 100%
   ______________________________ about the middle of the lesson
   0% 100%
   ______________________________ toward the end of the lesson
   0% 100%

6. Where attention was apparent did it seem due mainly to: the subject discussed ____, fear or politeness _____.

7. Do you think that your presence today seriously affected the teacher or class? yes _____ no _____.

8. If yes, describe how.

9. Did the teacher or class ask you questions? Teacher asked questions? yes ___ no ___. Children asked questions? yes ___ no ___.

10. At the end of the lesson, about what percentage of the class was still engrossed in the activity? about _____%.

11. Describe how the lesson was terminated.

12. At the close of the lesson did the teacher tell the children what they had learned? yes ___ no ___

13. About how long did it take the teacher to collect and put away the materials used in the day's lesson? about _______ minutes.

14. How about quantity of materials used in today's lesson? There was: too little _____, enough _____, too much _______.

15. If other than enough, what might be a better quantity?

16. How closely did the teacher stay with the lesson plan?

____

not at all very closely

17. Whatever she did how appropriate did it seem. For example she might have disregarded the lesson plan entirely and still have attained the objectives of the lesson or she might have followed the lesson plan scrupulously but without success.

D. SUMMARY OF DAY'S LESSON

Two models of Teacher-Media-Child interaction have been suggested. The first illustrates the teacher's role as sort of catalyst--she helps things along without really intruding. It looks like this:

Teacher

Media Child

The second model suggests a different role for the teacher--she acts as a go-between, but does not necessarily retard progress. A child must deal with her before getting on with the media.

Child - Teacher - Media

1. Which of these models best describes what you saw today? First _____, second _______.

2. If neither of these models is appropriate can you suggest others?

3. In terms of its objective the lesson was: unsuccessful _____, moderately successful _________, very successful ________.

What are your reasons for deciding this?

4. Can you make any suggestions for improving this lesson?

APPENDIX B-8
Evaluation Forms
Third Generation

NOTES FOR MATCH BOX OBSERVERS

Your role in general:

1. You are a project representative and serve as a liaison between the Project and the teacher.
2. You observe and describe the interaction between the Box, the teacher and the children.
3. You prepare a summary of your observations of the MATCH Box in use.

Representative of the Project:

It is very important to establish good feeling between the teacher and the Project. She is undertaking a big job in evaluating a MATCH Box for us. It takes a lot of her time, there are often anxieties connected with the task, and there are no tangible rewards. Remember, too, that she is doing something that has never been done before.

If you are an administrator or have some other regular relation to the teacher, make it plain by your actions that in this situation you represent the MATCH Box Project.

You should be thoroughly informed about the Project, why and how the evaluation is being conducted, and the reason for your own involvement.

Making Classroom Observations:

For any given Box and classroom situation make three to five observations distributed over the three-week evaluation period. If possible (you'll have to feel the teacher out on this) make these observations unannounced. We do not want data on show-case lessons that have been prepared for you.

When the teacher receives her Box she is asked to indicate when she plans to use it so you will have scheduling information to plan your visits. Perhaps confirm the first visit with the teacher, and after that make them unannounced.

For any given classroom there should be only one observer. This is to establish rapport with the teacher and to give the observer an overview of the total unit, rather than fragments from many. You may, however, be the observer for more than one Box.

Your basic purpose is to observe and describe what is going on in the classroom between the Box materials, the children, and the teacher. Your position is neutral. You are trying to see the totality of an event. You are not there to evaluate the teacher.

Prepare yourself by reading the guide. Be particularly familiar with the lesson that you are observing so you can understand what the teacher and materials are aimed at achieving.

Observing is difficult and it takes time to learn how to do it. There is a great tendency to watch and listen to the teacher, but try to keep this in balance and watch the children. What are they doing? Often you can position yourself in the room - perhaps at the side - to make it easier to watch the children. Furthermore, don't hesitate to walk around the room or even at times to talk with the children to see what they are doing.

Record observations as they occur: Time the lesson began, major parts of the lesson and time devoted to them, how the class was organized, what was used, how particular children responded to the materials, what questions they asked, what difficulties were encountered by the teacher or children, how the classroom was arranged for the lesson, and how this influenced its success, etc.

Include momentary insights of your own and opinions, but make it clear that this is what they are. Details are very valuable.

There is a lot that can be recorded. Obviously choices must be made based on what seems relevant. Furthermore, if there is a choice between observing something or recording something - by all means observe. It is far more important for you to see what is going on than to write about it.

As soon as possible after an observation write a summary of the observation and your impressions of it. Also reread your notes to make sure they are complete and clear. Fill in whatever seems needed. When you come across something that needs to be pinpointed, underline it and identify it in the left-hand margin with a key word like - discovery, procedural problem, recommendation, child's comment, teacher's comment, etc.

Record observation notes and summaries on 8 1/2" x 11" paper - ONE SIDE ONLY - and attach an "Observation Cover Sheet" to the notes for each observation.

Turn all of these in at the end of the evaluation period together with your Final Summary.

Summarizing the Observations:

After your last observation, look over your daily records and prepare a Final Summary. Here we are interested in your overall impressions of the MATCH Box and how it worked in the classroom in which you saw it. In your discussion, consider the influence of these variables:

- the MATCH Box itself - its materials and activities, the Teacher's Guide
- the teacher - her teaching style, experience and attitude
- the setting - the physical arrangement and facilities, attitudes of other teachers and administrators, the regular curriculum and schedule
- the children - their experience, age, interests and attitudes toward school
- the evaluation itself - the special nature of it, the way it was conducted, the presence of an observer.

Please tell us also:

- What you see as major difficulties in the Box and how these might be overcome.
- How the evaluation procedure could be improved.
- Any general opinions, insights, etc. that you have about the MATCH Box you saw or the Project as a whole.

Attach a cover sheet to your Final Summary and turn in all of your material right after the end of the evaluation period.

Thank you very much.

APPENDIX C
Examples of Tabulated Data

Included here are detailed data from one Box and some cross-Box comparison data.

C-1 Teacher Final Appraisal - Japan: tabular responses

C-2 Teacher Final Appraisal - Japan: open-ended responses
In order to convey a total impression of the teachers' responses to a single Box, we have included all the TFA tabulated data from the Japanese Family, 1966 Box of the Second Generation.

C-3 Teacher Final Appraisals: cross-Box comparisons - Second Generation
These percentages compare responses to the seven individual Boxes of the Second Generation on certain key questions of the TFA, shown in Appendix B-5.

APPENDIX C-1
Examples of Tabulated Data
Japanese Family 1966

DATA ANALYSIS OF TEACHER FINAL APPRAISALS

The data below are the numerical tabular responses and percentages made by the entire sample of teachers using this specific box. The exact wording of the questions has not been preserved from the Original Final Appraisal Questionnaire.

BOX: JAPAN
NUMBER OF TEACHERS: 24

SECTION A: EFFECT ON THE TEACHER

#2: 21 (88%) Knew what you were doing and why
1 (4%) Carrying out mechanical set of procedures
1 (8%) No Response

#3: Did you ever crave a test in order to tell you what the children were learning? Yes 10 (42%), No 13 (54%), NR 1 (4%)

SECTION B: EFFECT ON THE CHILDREN

#2: a. Would you say the children themselves know that they have learned something? Yes 24 (100%)
b. Do they know what they learned? Yes 24 (100%)

#4: Comparison of class response to MATCH Box and general response to other similar units in school curriculum.

In general while using the MATCH Box	More than Usual	Same as Usual	Less than Usual	NR
a. class interest in subject	23 (96%)	1 (4%)		
b. apparent learning of subject matter	15 (63%)	7 (29%)		2 (8%)
c. spontaneous questions generated	17 (71%)	7 (29%)		
d. children liked what they were doing	16 (67%)	6 (25%)	2 (8%)	
e. less verbal children involved	23 (96%)	6 (4%)		
f. number of children involved	12 (50%)	8 (33%)	1 (4%)	3 (13%)
g. attentiveness	17 (71%)	6 (25%)	1 (4%)	

SECTION D: THE BOX IN USE

#1: Characterization of experience with Box in terms of Overall Success. Average 3 (13%), High 14 (58%), Very High 6 (25%), NR 1 (4%)

#2:

22 (92%)	Match Box seemed to function as a unit
2 (8%)	Match Box seemed to be a disorganized set of parts.

#4. Difficulties with the materials:

4 (14%)	Using the variety of materials
3 (10%)	Finding items
6 (21%)	Carrying the Box
5 (17%)	Repacking
6 (21%)	Other
5 (17%)	No Difficulties
29	Total Number of Responses

#6: Materials could:

12 (50%)	Stand on their own.
11 (46%)	Required much explanation
1 (4%)	No Response

#8: Preference for arrival of Teacher's Guide before Box

	Time
18 (75%)	One week
6 (25%)	Two weeks

#5: Match Box - Suitable for teacher and class.

		Poorly Suited	Suited	Well Suited	No Response
a.	Difficulty of material to level of class	1 (4%)	11 (46%)	11 (46%)	1 (4%)
b.	Organization of Box to efficient learning	1 (4%)	8 (33%)	15 (63%)	
c.	Amount of daily preparation to time could devote to it	9 (37%)	11 (46%)	4 (17%)	
d.	Once familiar with Box, amt. of preparation to time could devote to it	2 (8%)	9 (38%)	13 (54%)	
e.	Materials & Activities to each other	2 (8%)	8 (34%)	14 (58%)	
f.	Subject-matter of Box to curriculum	11 (46%)	7 (29%)	5 (21%)	1 (4%)
g.	Period of two weeks to realistic use of Box *	16 (67%)	7 (29%)	1 (4%)	
h.	Other curriculum commitments not factor, for use in two weeks	10 (42%)	6 (25%)	7 (29%)	1 (4%)
i.	Teaching approach in Guide to regular teaching style	2 (8%)	7 (29%)	15 (63%)	

*Number of alternative weeks suggested follow.

* Number of alternative weeks suggested:

2 (8%)	Two weeks
11 (46%)	Three weeks
7 (29%)	Four weeks
4 (17%)	No response

SECTION F: GENERAL

#1: Materials appropriate to what Box is trying to say.
Yes 20 (83%), No 3 (13%), No Response 1 (4%)

#2: Learning outcome is worth time and effort required to use Box. Yes 23 (96%), No 1 (4%)

#5: Would like curriculum built around more units like this? Say 10 a year. It is assumed that the data, for the most part, are answers only to the first part of this question. Yes 21 (87%), No 3 (13%).

#7: If available, would use this Box again.
Yes 23 (96%), No 1 4%).

APPENDIX C-

Examples of Tabulated Data

Japanese Family 1966

MATCH Box Project
Evaluation

DATA ANALYSIS - OPEN END QUESTIONS OF TEACHER FINAL APPRAISALS

The following responses are representative examples of the responses made by the entire sample of teachers using this Box.

Section A EFFECT ON THE TEACHER

Question 1

(1.) Please describe how the Box affected you. e.g., Did you enjoy using it? Did the experience significantly alter your interest in using a variety of instructional materials or in the subject itself? Did some aspect of the experience stand out for you? Was there anything that you found surprising or annoying?

19 "I enjoyed using the box very much."

"The entire experience was very satisfying to both teacher and pupils."

6 "The tangible materials provided a good learning experience for the children."

"It was a pleasure for me to explore the contents of the Box, and to contemplate their use in the classroom."

"The material was wonderful and my class really enjoyed it."

"The materials were stimulating, the children very enthused, and the contents of the boxes well-planned."

9 "Every moment was fun, and yet their learning was so real which they certainly proved with other endless questions and constant enthusiasm."

"The interest and enjoyment of the children in the Unit was outstanding."

"The Box did arouse the children's curiosity and many asked, "What's next?"

"I particularly enjoyed the children initiativeness in writing and obtaining further background information on their own."

13 "I know the class learned much more this way than through the more usual approach."

"The Box helped them to see the importance of organizing, listening, and actually reading for directions."

"Setting the group in families was a very good experience for the children."

8 "With the Box has come an appeal to the tactile sense as well - an aspect of tangibility. It has in effect created an environment and the means with which the children may enjoyably enter and function within it as an intregal part."

"Previously I had been limited to purely visual stimuli (photographs, movies, film strips) and supplemental texts to augment the basic 'teachings'."

"The greater the number of the '5 senses' involved in the learner's experience, the greater the learning:
Example: Sight; the actual Japanese materials to see, the authentic family album, comic books, poetry book.

"I especially liked the idea of studying Japan in family units and looking at Japan from the idea of people rather than cities and products."

3 "I found the box lacked the necessary amount of background information for the teacher."

"The teacher will have to have more background information on the unit in order to help answer the questions of the children, to a better degree than was provided."

"It was difficult for me as a teacher to locate information on Japanese family life."

3 "The missing materials constituted minor annoyance."

"The fact that the 'Family Guides' were missing, I found to be very annoying."

3 "The most annoying result of my work with the Box was the confusion it generated in the classroom."

"It was difficult to control 34 excited fourth graders - they couldn't seem to grasp the idea that they must speak through father."

3 "The manual provided was disappointing."

Question 3

(3.) Did you ever crave a test in order to tell you what the children were learning?

13 "Their reactions, comments and general attitude were self-tests."

Observation alone was sufficient - it was quite obvious that they were learning as well as enjoying."

"I feel a test would greatly take away the enthusiasm for learning that resulted from this unit of very real living experiences."

"Understandings, a feeling of closeness and familiarity with another group of people, the carry-over of interests and attitudes which emanate from this unit into other endeavors can only be tested by observation."

10 "This Box would increase in value if outlines for oral discussions were provided."

"Systamatic oral discussion periods in order to evaluate qualitatively exactly what the children were gaining from this experience."

"Before and after - for purposes of evaluation (of unit) and also to justify spending so much time on one subject."

"You cannot take a test-oriented child, as most are today, and expect him to feel that the teacher regards something as important if she isn't willing to test him on it."

"I have prepared a test to be given to satisfy my curiosity."

Question 4

(4) In what ways, did your relationship with the children change while you were using the Box."

6 " We seemed to become a closer knit group."

11 "The lessons required a greater amount of responsibility on the part of the children."

"I would not say my relationship changed, but my role did (I did less teaching; they did more discovering.")

"I became less of a director and more an equal - a sharer and a fellow-discoverer."

"The children assumed leadership."

4 "The children felt freer to ask questions and I to answer."

"I feel that the children were more cooperative than usual."

1 "They carried this generally carefree attitude over to the rest of the day, which frequently disturbed the 'conventional' teaching routine."

2 "It showed me new leadership qualities, some creativity, and the pupils who showed initiative and enthusiasm."

"Some children I thought would make good leaders were not as successful as some I was in doubt about."

5 "I don't believe my relationship with the children changed noticeably."

Question 5

(5.) What lesson did you like best? Why?

2 "Lesson 2 - Moving Day"

9 "Lesson 3 - Setting Up House - children were very excited and interested in the materials."

"Lesson 3 - Everyone was wonderfully involved."

"Lessons 3 and 4 generated a tremendous amount of enthusiasm and involvement among the children."

"I liked the 3,4,5 combination setting up house, family council, open house best - it had the highest degree of 'Tangibility'."

5 "Lesson 4 - Family Council"

12 "Lesson 5 - because they seemed to very much enjoy putting on their demonstration."

3 "Family presentations."

"All children participated and thoroughly enjoyed themselves."

2 "Lesson 6 - Family Rules - the class loved it."

Question 6.

(6.) What lesson did you like least? Why?

2 "I liked lesson one (Becoming a Family) least. I like to start a topic with a splash - to really hook the children. As noted in the daily log, I realize this lesson was necessarily and unavoidably 'dry' due to the lack of a frame of reference, but it should have and could have been embellished."

1 "Lesson 2 - Moving Day - too much crowded into that lesson."

1 "Lessons 3 & 4 - Setting Up House and Family Council - they were poorly organized. The amount of work and the time consumed in doing it, for each family varied so greatly that the classroom was an uproar - with a constant stream of children running to the teacher to ask 'What Now?'."

2 "Lesson 4 - Family Council - confusion due to too large family groups."

"Lesson 6 - Family Rules - not enough activity."

"Lesson 6 - Family Rules - unclear directions, not enough materials."

"Lesson 6 - Family Rules - seemed to be the one lesson that was difficult for the student to comprehend."

7 "Lesson 6 & 7 - seemed to belabor the point - almost anti-climatic."

"Lesson 7 - Family Ancestors - Pupils found it difficult."

"Lesson 7 - Family Ancestors - This did not seem to hold the children's interest well."

"It was extremely confusing to both teacher and students."

"Lessons 6 & 7 - felt that most of the class too immature to grasp the significance."

5 "Family Changes needed more information to go with the films for a true learning experience."

2 "They all were very valuable."

1 Would have liked a lesson that brought all families together."

Question 7.

(7.) How do you like teaching with the MATCH Box compared to the usual materials and methods you use to reach this topic or similar ones?

14 "I thoroughly enjoy it."

"I enjoyed working with the MATCH Box very much and the children loved it."

"I found the use of the MATCH Box a pleasant change from the usual report approach to Social Studies. Through this Box, we covered a limited area, but their learning was real and thorough and not the usual result - factual knowledge."

8 "Naturally, teaching with an abundance and variety of easily accessible materials is preferable."

Thought this was a superior teaching method, especially for materials in a foreign country unit."

1 "If the Box were more coherent for both children and teacher I would definitely prefer it over other methods."

Section B EFFECT ON THE CHILDREN

Question 1

(1.) Illustrate for us what your class got out of the Box experience by describing what happened with one or two particular children. Show: what they really learned; whether their attitude toward the subject, or you, or other children was affected; how their interest may have shifted; how they used free time; what objects or activities they particularly enjoyed; what ideas they had; how their participation was affected; and what difficulties or confusions they may have experienced.

11 "Children were fascinated by the materials, books film loops, gong, incense."

"They enjoyed using the colligraph and films."

"They made good use of film loop projector."

"During their free time they examined objects in the family room: books, chopsticks, and scrolls."

"Several children asked permission to stay in recess to read the family histories."

14 "All the children participated enthusiastically in the project, even the slow learners."

"Their interest was high throughout the unit and their enjoyment was evident at all times."

"I'd like to go to see Japan, wouldn't you?"

"Several pupils spoke of enjoying the unit because 'it was as if I was there'."

11 "Several learned rudiments of courtesy, self-control and responsibility hither to undisplayed."

"Their awareness of the word compromise is now so very real."

"The children did grasp Japanese customs relating to shoes, clothing, eating and religion."

"Many children thought that Japanese music was 'strange' and weird."

"Their music hurts my ears."

"Perhaps the most surprising thing to the children was the realization that the Japanese people were not the stereotyped kimono - wearing type very foreign to them. It surprized and pleased them to find that they dressed like us, read comics, had similar magazines, and through the poetry book realized the children thought the same as they do."

"They began to look for signs of Japan in their homes - magazines - Japanese articles - a movie with a Japanese setting on T.V. last Sunday. They involved their own families in the project. It created an awareness that learning goes beyond the classroom."

12 "Shy little girl became a stronger personality in a mother's role. She understood her role well, and then played her part convincingly at the Open House."

"Boy in father's role, seemed to bring out leadership qualities that evidently were not tapped before."

"Look, I'm the father ! The mother isn't boss here, you know!"

3 "The class as a whole has begun to work very well in groups."

"This type of work serves to emphasize which children are leaders and which are backward in working in groups."

"They have become much more observant and co-operative."

3 "Several children invited parents in to see the exhibit."

1 "Interest in magazine and comic books was short lived. Accepted fact that Japanese children had them."

1 "Book of poetry did not seem to be interesting to them."

1 "The children did not understand what was expected of them. What now, 'Do I write a prayer?' The family instructions were good, but frequently unclear."

Question 2

(2.) Please say a word about any signs the children themselves may have given you to indicate an awareness of learning something."

8 "Animated discussions, Budhist religion, use of chopsticks and table manners."

"Their constant questions and skeptical opinions of the Japanese I.E. rules and the very serious manner through which they carried out their family roles made me realize the depth of their learning."

"Calling clothing and foot wear by proper names."

"Several told me they felt that they knew much more about Japan."

[illegible] "Discussing and explaining different items and what they have learned to children who come to see our 'Japan'."

"When anyone came to the classroom to look at the exhibit, I always had plenty of volunteers to serve as guides and give a guided tour of the Japanese family room."

[illegible] "They show ability to work independently. They are better able to use resource materials, They are helpful to their peers. They ask questions. They compare children of Japan with others."

1 "The fathers and mothers in particular are aware that they have gained new knowledge, for they were responsible for the family's performance."

1 "Parents told me their dinner table conversations were often lectures on Japan."

Question 3.

(3.) Did you notice any interesting connections between the things and activities in the Box and the children's verbal behavior?

12 "Their verbal behavior was activated by the unit experiences."

"Children enjoyed explaining operations or materials to friends."

"Within their families, each child felt so secure and thus expressed themselves so freely."

4 "Vocabulary did increase, their characters - calligraphy, kimono, obi, tabi, and geta."

4 "The non-verbal children participated far more than usual."

"I did notice that the few shy ones seemed to loosen up in most instances when working with the Box."

"Yes, children, even the very bright, who have been very reticent are very anxious to talk about this project, it carries into other areas."

1 "Some children tried to take on an air of politeness in their voice."

5 "Ordinarily verbal children stayed the same and less verbal children seemed to remain in the background."

Question 5.

(5.) Describe any instances where the children showed a significant new understanding or insight as a result of using the Box materials.

1 "I'd say Lesson 1 (Becoming a Family) provided the most significant new understanding when they really became aware - through their role playing of the hierarchy of the Japanese family and the duties of its constituents."

7 "Family relationships were the center of most insights - 'But I'm mother, I can't speak up!'"

"Their constant awareness of who in the families should carry out what roles and their constant fear that someone would overstep the bounds of their role was a most significant sign of their new understanding of the Japanese family."

"The idea of women being sub-servient to men was new and quite difficult for them to believe. It was my first realization that these children actually visualize the woman as being head of the house hold."

1 "After they practiced with chopsticks, they understood why the food was cut in pieces and appreciated the beauty and manners of eating, Japanese style."

1 "A general respect for various customs of the Japanese."

1 "They were surprised at the similarities among different religious beliefs and rites."

2 "They found that in Tokyo the modern Japanese Family lives much like we do and their cities look and sound much like ours."

Question 6a

(6a) What lesson would you say appealed most to the children? Why?

11 "Lesson 3 - Setting Up House - they were actually handling materials that had meaning."

8 "Lesson Four - Family Council."

13 "Lesson 5 - They enjoyed showing their accomplishments to others. - Open House."

"Lesson 5 - We invited the other 6th grade to the 'Open House' and my children enjoyed showing the other class the things we had as well as telling about the things they had learned."

"Demonstrations - gave everyone a chance to give oral expression as well as show what he had learned."

6 "The 3,4,5 - Setting Up House, Family Council, Open House combination, grouped as a whole - preparing for, rehearsing, and presenting demonstration."

"Lessons 3 & 4 - Involvement with the materials was at its peak."

1 "Lesson 6 - Family Rules"

1 "Lesson 7 - Family Ancestors"

* "Lessons 3, 4 & 5 appealed most to my children. The reason is that these lessons required less paper work or mental work that did the other lessons."

Section B

Question 6b

(6b.) From which one did they seem to learn the most?

1 "I'd say they learned the most from Lessons 1 - Becoming a Family."

1 "Lesson 2 - Moving Day"

9 "Probably they actually learned most in the third lesson, Setting Up House."

6 "Lesson 4 - Family Council"

12 "Lesson 5 - Open House"

4 "Lesson 6 - Family Rules"

3 "Lesson 7 - Family Ancestors"

1 "Lesson 8 - Family Change"

1 "All Lessons"

Section B

Question 6b.

(6b.) From which one did they seem to learn the most?

1 "I'd say they learned the most from Lessons 1 - Becoming a Family."

1 "Lesson 2 - Moving Day"

9 "Probably they actually learned most in the third lesson, Setting Up House."

6 "Lesson 4 - Family Council"

12 "Lesson 5 - Open House"

4 "Lesson 6 - Family Rules"

3 "Lesson 7 - Family Ancestors"

1 "Lesson 8 - Family Change"

1 "All Lessons"

Section C: OTHER EFFECTS

Describe any immediate effects the Box may have had on things or people outside of its regular use. e.g., Did children bring things in from home? Did other teachers or the principal become involved in it? Did you hear anything from parents? Are there any techniques suggested by the Box or invented by you as a result of using the Box which you plan to use in other subjects?

20 "Pupils brought in many books, part of a Jap newspaper, Jap lanterns, Jap money, more kimono, chopsticks, dolls, fans, pillows and pictures.

"Ten children brought in kimonas, every child brought in chopsticks."

"I have never had such fantastic response as far as bringing things in from home."

"Yes, in fact I had fathers, mothers, uncles and aunts sending in items."

11 "Interest was high among the teachers."

"Music teacher brought in Japanese music and instruments."

"All other teachers visited, many students from other classes."

6 "Our principal visited one class period. He was very impressed with what the children were doing in small group situations."

5 "Children of other classes were intrigued and interested in what was going on."

"Two other 5th grade rooms were invited to watch our demonstrations."

1 "Other teachers and principal were not involved."

12 "Some parents stopped by after school - they said their children were so interested and getting so much from the Japanese unit."

"Parents commented as to how much their kids were enjoying it. Others complained about the time aspect recalling (Dec. 7, 1941) Pearl Harbor."

"The first Open House of the year took place while the Box was in use. All the visiting parents mentioned how engrossed their children were with the materials, and they themselves (obviously impressed) spent much time looking through them."

"Parents I spoke to were quite impressed by the interest this type of study created."

5 "Shall use group procedures in other projects."

"The value of role playing - this can be used in many areas."

Section D

Question 3.

(3.) Was there anything - idea, or procedure, or reading level of the material - with which you or the children had General difficulty?"

3 "We had same problems figuring out ancestors charts as to who should and who should not be included."

"Geneology charts were too dificult for individual children to compose with as many as seven sharing a family book."

2 "Directions for the Yamakawa family were woefully inadequate."

"In Lesson 3, the Yamakawa family spends too much time writing - rather than in some activity (as the other families) are engaged."

2 "There was some difficulty in finding information for Family Changes."

4 "The reading level, and quality of direct instruction for both teacher and children."

"The reading level of the material was 5th or 6th grade, not 4th."

1 "They liked the film loops but didn't understand them as well as they could have if they had had words."

4 "The children were the difficulty. They never before realized they were the ones dependent to make a success of this Box."

"Children had the most difficulty in getting ready for Open House."

7 "Surprisingly, the children had no difficulty with the idea, procedure or reading level of the material."

Section D

Question 7.

(7.) Comment on the usefulness of the Teacher's Guide. Consider organization, adequacy of information, amount of detail, and the spirit of the thing.

18 "Teacher's Guide was most helpful. I liked its organization and general spirit."

"The Teacher's Guide was seemingly prepared with the teacher in mind, a rather unique approach! It gave thorough but concise preparation, was well organized, and allowed for individual adaptation and approaches."

"I found the Teacher's Guide most useful, well organized and detailed."

5 "Knowing practically nothing about Japan I would have liked more background material. Would have liked histories included. Also information inserted concerning facts behind the demonstrations."

"More background information lesson 6 & 7."

"A concise history (cultural) of Japan as a whole, could have been included."

"The relationship between the families and their family histories should be more clearly spelled out so that teacher is prepared for children's problem."

4 "There were many, many gaps in the manual. Directions re Tokanama in the Yamakawa Box were unintelligible. Definite objectives and clear-cut procedures should be stated in each lesson in the Guide."

"I would prefer more flexible lesson plans."

1 "Include a list of stimulating questions and answers at the end of each lesson to review and see what the children have learned."

2 "The guide should have a summary of the film loop contents."

"The only thing lacking was explanation or narration for the loops."

2 "I think it should contain all the material for Lesson 3 and job cards for Lesson 4 for all the families instead of one sample of these 2 lessons."

"Would suggest that Lesson 3 from 'Family Guides' be included in Teacher's Guide."

1 "Character Card explanation needs clarification."

1 "I was confused by the directions on page 10 & 11."

1 "I would like all of Unit I together - not have to leaf through it to find additional material."

1 "The teacher could have been left a bit more 'freedom of approach'."

Section E

Question: RECOMMENDED CHANGES

How would you change the Box? What would you omit or add? How would you alter the approach or lesson sequence? How could it better suit your curriculum?

5 "A lesson could be added as a culminating activity. Lesson 8 was not as interesting as the previous lessons."

"I would like to see MORE MATERIALS if possible (Objects, clothing - Tangible items.)"

Lesson 1 - a.) introduce term Patriarchy
b.) pass out IE rules here also
c.) have pictures of illustration to embellish this all important opening lesson
d.) offer more clearly defined questions
Lesson
3,4,5 a.) creating and explaining a scale model
b.) Tokonoma, clothing and floor plan did not involve all members of family

1 "Add a real tatami mat - cheap, easy to pack in a roll, gives class better idea of texture, smell of mat and reason for taking off shoes."

1 "I would add a general film or slides (with narration) giving overall picture of Japan itself, with brief historical background."

3 "Add more records, music, language." "More enrichment of musical part of a family interest - Koto."

1 "Add flat pictures such as architecture of homes and shrines."

"A unit on Japan surely should include one - or more abacus."

3 "More family histories needed."

3 "I would add more relationship to American families and their habits and customes."

1 "Clarify explanation about place setting in Yoshida box - some dishes for family, as Pickle dish - some for individual - such as Soup and Rice bowl."

"Integrate subject matter with the study of Japanese customs e.g. map work, historical view of Japan, topography, major cities, products."

1 "Pupil participation in the reading area limited, language art expression limited - spelling and vocabulary could be expanded - How about HAIKU?"

3 "Make every effort to send a complete box. Some of the shortages created some problems (e.g. in calligraphy chart, no family album, no ancestor tablet, and only one loop.)"

"I was at first so disappointed because my box was not complete."

3 "There should be more background material for teachers."

2 "More explanation should be given in children's guides about IE and UCHI."

3 "Add at least one more family for large classes."

"With classes over 28 or 30 another family or group is needed."

2 "Film loops should have more explanatory materials with each one, so that children and teacher understand the intent and content of each."

"I feel that the film loops could use improvement. There wasn't enough about a topic, such as 'Work'. The topic 'Work' could easily fill an entire loop."

"I would eliminate Lesson 8 and expand on religious ceremony in Lesson 4 & 5."

3 "Consider dividing Lesson 4 into 2 parts."

"Eliminate Lesson 6 & 8 Lesson 8 can be used as a method of comparing Japanese and American family life."

5 "I wonder if my pupils might not have found Lesson 7 an anti-climax after the presentation and demonstration of Lesson 6. To me and my pupils I feel Lesson 6 the high point of the Unit."

"I would change the order to: Lessons 1, 2, 6, 7, 8, 3, 4, and 5. For sixth graders Lesson 5 is the climax and it should come at the end."

"I think lessons 4 & 5 should culminate the unit. After these lessons interest seems to drop a bit."

"I think the family rules # 6 and ancestors #7 should come before

Open House. Perhaps in this order #1, 2, 6, 7, 3, 4, 5, & 8."

"Because our materials did not arrive, we had to reverse the order of demonstrations and family history. Having first learned of their family histories they came to take such pride in themselves as a family and better understood their positions in the community and their occupations within this community. Really knowing and understanding their family backgrounds, they then began to plan their family deominstrations with the final day of the unit set aside for these."

3 "Have the children in the Yamakawa family paint their own idea of a scrolls rather than selecting one from the box. They don't have enough activity in Lesson 3."

1 "Children in families should be assigned specific areas of competency, i.e. Shintoism, Budhism, Japanese house, etc., each within the context of a family's subject area."

1 "Lesson 8 could be expanded to tell more of present day work in Japan and thereby be more useful in correlating with geography course of study."

Section F

Question 1.

(1.) Comment on whether the materials in this Box and the approach seem appropriate to what the Box is trying to say.

20 "The materials and approach together provide a most real and complete learning experience."

3 "It didn't seem to stress the natural breakdown of the traditional to the modern and some struggle to preserve."

"Insufficient contrast is shown between traditional Japan and modern Japan."

"The materials are excellent for my goals - the approach used is vague as described in the manual."

Question 2

(2.) From an educational standpoint would you say that the learning outcome for the children is worth the time and effort required to use this Box?

23 "They experience and they gain a feeling that I don't believe can be duplicated through reading or discussion."

"Children learned to work in groups and cooperate on reports."

"It is worth more time."

1 "I don't think it is worth amount of time expended."

Question 3

(3.) If you see the MATCH Box as a different way of teaching and learning when compared to your normal approach and technique, what is the difference.?

9 "It was a pleasure to have such diversified material."

"Having authentic materials provides the atmosphere for interesting learning."

"I try to teach this way all the time - it was a joy to on this occasion to have the proper tools."

4 "Much more pupil involvement - which is good."

2 "Match Box places a greater responsibility for learning on the children and provides an opportunity for actual interaction between children and materials, this is not always possible in other areas."

1 "It focused on learning from objects and procedures which is much more stimulating than just book learning, combined with films, film story, etc."

3 "Role playing is the difference."

3 "I don't see it as different from my way of teaching."

Question 4

(4.) How do you feel about this relatively concentrated treatment of a subject as compared to the common practice of treating this much content over a longer time?

6 "In this one isolated case, it seemed a more valuable way of learning."

"Good if there's time."

1 "Use this concentrated treatment within the longer period time - either as an introduction, to relieve 'mid-unit slump' or as a culminating activity."

4 "There is too much is some lessons to be accomplished in one period."

"Time limit is restricting and creates a 'lets get finished' attitude."

3 "I think this box has given too much time to the content."

2 "Other areas in the curriculum suffer."

"I spent more time than I originally thought I would on this box and as a teacher was concerned about the loss in other areas of my curriculum."

3 "Sometimes tiring because of intensity."

Question 6.

(6.) For the amount of time spent do you think this approach to teaching makes learning easier, better, more fun, compared to the same amount of time spent with more traditional techniques?

20 "It's more fun and makes learning easier."

"More fun, more meaningful."

1 "The amount of time spent in the pursuit of this limited amount of understanding is great."

1 "No, because I was not properly prepared and I like to develop my own plans for teaching a unit."

Question 8.

(8.) Finally, comment on the evaluation itself, how it was conducted, whether it was what you expected, how you felt about the observer and these questionnaires.

7 "Observer was wonderful. She assisted me in many way which I appreciated."

"It was a pleasure having such a pleasant observer as she was so helpful and so enthused with the children's reaction to the materials."

3 "Observers I could do without. They did influence children adversely especially photographers - (everybody wanted in on the act) - and what did they do with all those mysterious pages of notes?"

"I feel that the observers should, if possible, be checked out on the full procedure of each box."

4 "Found the daily log valuable in evaluating what was learned, and in lesson planning for next day - liked the introspection it forced."

3 "All together too much paper work expected from a teacher already burdened with excessive reports."

7 "I do feel that the daily questionnaires became repetitious toward the end and were filled out with less care. Each day it seemed an anti-climax to the lesson. Because this final evaluation is so, putting it mildly, thorough, I feel that this is adequate and more useful in finding out the information you would like to know."

9 "I haven't minded the valuation."

A P P E N D I X C-3
Examples of Tabulated Data

DATA ANALYSIS - PERCENTAGE COMPARISONS

A: #2	HSE.	CAM.	ESK.	MUS.	JAP.	RCK.	MED.	TOT.
Knew what were doing	88%	91%	95%	79%	88%	95%	83%	88%
#3								
Crave a test - Yes -	25%	--	24%	46%	42%	37%	17%	27%
B: #2.a.								
Children know they learned - Yes -	88%	91%	95%	88%	100%	90%	83%	90%
#4								
MORE								
Interest	63%	68%	95%	92%	96%	85%	83%	82%
Learning	37%	50%	81%	42%	63%	74%	39%	54%
Questions	59%	36%	57%	54%	71%	74%	60%	59%
Involved	42%	64%	57%	54%	67%	42%	65%	56%
Enjoyment	71%	73%	95%	83%	96%	84%	91%	85%
Class Involved	33%	45%	71%	46%	50%	42%	60%	50%
Attentiveness	54%	45%	90%	79%	71%	53%	70%	67%
D: #1								
Overall Success								
Average	13%	9%	10%	13%	13%	37%	17%	15%
High	38%	64%	52%	75%	58%	26%	57%	53%
Very High	29%	18%	38%	4%	25%	32%	17%	23%
#2								
Box Functioned as a unit	88%	91%	90%	100%	92%	90%	74%	90%
#6								
Materials could Stand on Own	67%	64%	62%	67%	50%	21%	52%	56%
F: #2								
Learning worth Time & Effort - Yes -	75%	82%	100%	70%	96%	85%	83%	84%

F: #7	HSE.	CAM.	ESK.	MUS.	JAP.	RCK.	MED.	TOT.
Use Box Again - Yes -	88%	82%	90%	84%	96%	90%	74%	86%

D: #5	HSE.	CAM.	ESK.	MUS.	JAP.	RCK.	MED.	TOT.
WELL SUITED a. difficulty of material to level of class	42%	50%	33%	34%	46%	31%	26%	38%
b. organization to efficient learning	63%	45%	67%	50%	63%	37%	30%	51%
c. daily preparation to time could devote to it	13%	18%	24%	4%	17%	16%	13%	15%
d. familiar, daily prep. to time could devote to it.	38%	64%	62%	42%	54%	47%	39%	49%
e. materials and activities to each other	54%	55%	76%	50%	58%	58%	39%	55%
f. subject matter to curriculum	38%	36%	57%	33%	21%	42%	9%	33%
g. two weeks to realistic use of box	13%	23%	19%	13%	4%	10%	--	11%
h. no curriculum commitments, Box for use in 2 weeks	37%	23%	43%	21%	29%	53%	34%	34%
i. teaching approach to regular teaching style	21%	41%	62%	25%	63%	26%	26%	38%

APPENDIX D
Box Reports Summarized

In compliance with our contract, a complete report has been prepared for each MATCH Box. These reports include a thorough analysis of the data pertinent to a Box. Section I of each report summarizes the findings and conclusions. For the sake of brevity only these first sections of the reports are included in the Appendix.

D-1	Grouping Birds
D-2	The City
D-3	The Algonquins
D-4	Seeds
D-5	A House of Ancient Greece
D-6	Houses
D-7	Animal Camouflage
D-8	Netsilik Eskimos
D-9	Musical Sounds and Shapes
D-10	Rocks
D-11	Medieval People
D-12	Japanese Family: 1966
D-13	Waterplay
D-14	Imagination Unlimited
D-15	Paddle-to-the-Sea
D-16	MATCH Box Press

APPENDIX D-1
Box Report Summarized
Grouping Birds

MATCH Box Project
U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

GROUPING BIRDS

BY SHARON WILLIAMSON

BOX DEVELOPED BY MICHAEL SPOCK
GENEVIEVE KEATING
SHARON WILLIAMSON

PROTOTYPE COMPLETED SEPTEMBER 1965

EVALUATED FALL 1965

SECTION I: GENERAL FINDINGS

OVERALL PURPOSES

The Grouping Birds MATCH Box represents an attempt to create a set of exciting materials for teaching classification to primary grade children. The idea of teaching classification to children of this age was not revolutionary: it is done all the time. However, we felt that the buttons and colored geometric shapes in use in many classrooms, though they did give children practice in grouping, were dull and did not teach the children the "why" of classification. They also can not add much to the child's accumulation of knowledge about any particular topic. Thus, we set about designing a MATCH Box which would combine the teaching of an important and useful skill with the learning about an interesting and rich subject.

Birds were chosen as the subject and major media of the Box for several reasons. Children like them. Birds are given some coverage in primary grades already. And most important, birds in their great variety lend themselves to being classified. While the Bird Box sought to teach classification in an interesting way, it also constituted an experiment in the design of highly correlated yet diverse materials that would communicate with young children who haven't yet learned how to read.

APPROACH

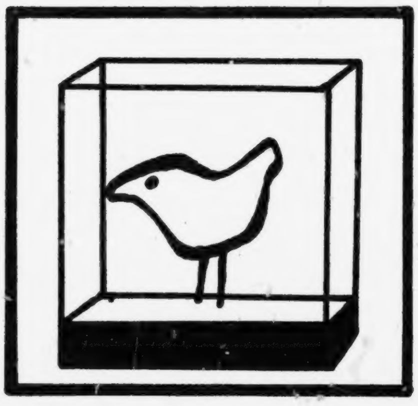
The ability to classify is actually composed of several kinds of skills. In designing the box, we isolated several of these skills and created a lesson for each. The initial lessons teach the children how to recognize and select members of a given group. In the next few lessons, the children are required to create their own groups, and in the final lessons, the children create and evaluate groups that solve particular practical problems. A few lessons are devoted exclusively to gathering information about the birds' habits, and some of the games are designed to be used repeatedly if the children need more practice in a particular aspect of classification.

MATERIALS

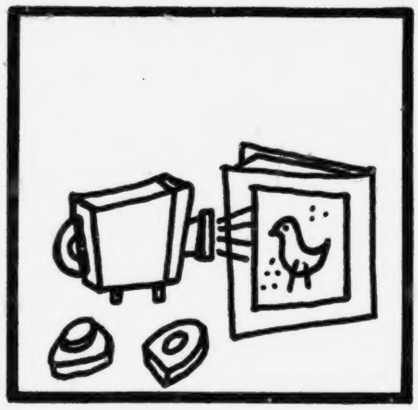
In the box are nine species of birds: robin, cardinal, duck, sandpiper, quail, woodpecker, swallow, hummingbird, and owl. They are all common North American birds, but they differ from another in appearance and in habits (See Background Information).

Each bird is represented in the Box in several forms: as a mount, in a section of each set of film loops, and on a data chart and on stickers.

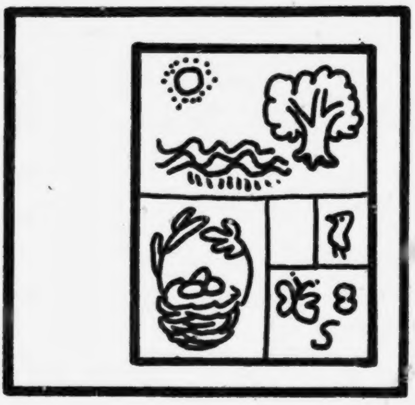
Also in the Box are a set of flash cards on characteristics of the birds such as beak types, and nest sites, a film loop projector and screen, as well as story and reference books. The most important feature of these materials is that they are integrated; that is, the bird mounts, film loops, data charts and flash cards are designed to "work" together. The very same nine birds are consistently referred to and shown in the media, so that the children will develop a rich and detailed impression of each bird. A second feature, common to all, is that the children can handle them easily and learn from them directly.



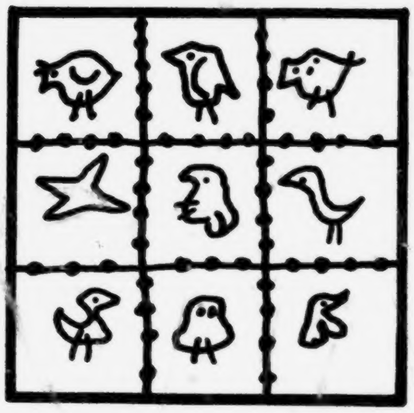
Nine MOUNTS or "stuffed" bird specimens in realistic feeding poses, enclosed in sturdy plastic boxes that the children can handle.



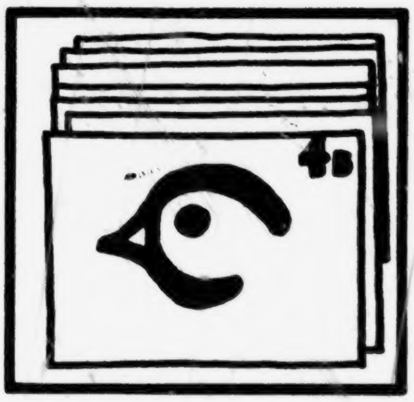
Two pairs of FILM LOOPS, "Feeding" and "Nests and Young". Each species of bird is shown in both pairs of loops. The cartridged loops need no threading or re-winding. A compact projector and desk-top folding screen are also included.



DATA CARDS showing each bird's picture, habitat, food, nest, etc. Children can fit these together into complete reference charts as they gather information from the film loops.

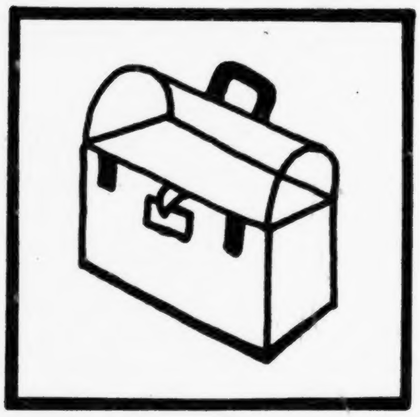


STICKERS: Small gummed illustrations of each bird, supplied in quantity so that each child can sort and re-sort the birds in a number of different ways while keeping a record of his groupings.



FLASH CARDS: Line drawings showing characteristics of the birds. When these are held up, children look for the bird or birds with the characteristic shown on the card. (See the list of characteristics in Section IV.)

BOOKS: Reference books for the teacher and the children, and story books about the birds in the Box.



The materials are packed into two animal Carrying Cases of equal size, 24 inches high, 14 inches wide.

A Teacher's Guide is included which describes how these materials are to be used together. It includes lesson plans, background information and a section of dimensions showing how the flashcards can be used to ask the children grouping questions.

OVERVIEW OF THE LESSONS

The lessons in great part are organized as games. The children begin with a game called "Find A Bird" in which they are first introduced to the birds. The teacher holds up a picture of a bird, and the children must find that bird among the mounts. She proceeds by asking the children to find birds with certain characteristics such as pointed tails, or curved beaks. "Find A Bird" is meant to be used to "prime" the children to detect differences and likenesses among the birds, and then to group them into categories designated by the teacher. This gives the children some initial practice in sorting, and a further chance for close examination of the birds. The next activity is devoted to finding out about the bird's behaviors, especially their feeding and nesting habits. The children watch film loops of each bird, and then sort through pictures of eggs, habitats, nests, and food to find the ones that go with each particular bird. Once a final selection is made, these pictures are attached to charts, one per bird.

Next there is a game called "Guessing Groups" in which the children have to examine a group of birds and determine why they have been grouped together. The groups, usually based upon physical characteristics, are first determined by the teacher, and then by members of the class.

An activity in which the children are given the problem of grouping birds into zoo cages follows. They must not only decide which birds go together for practical feeding procedures, or for type of habitat, but they must also evaluate their groupings. Each child is given stickers, representing the birds which they use instead of the full-sized birds, to create their own "zoo". In this activity and in the next, called "Hatchery Owner", the children are dealing with real classifying problems, paying attention to differences among the birds which make a difference.

GENERAL FINDINGS AND DISCUSSION

The children found the birds and related materials extremely interesting. This is an almost unanimous opinion of the teachers and observers. And, fewer, but still a majority, were sure the children had learned a great deal about the birds. However, there is some question about whether the children learned the skills and the purposes of classification.

We believe that the materials were informative and fun to use because they were real, easily handled by the children themselves, and were keyed to each other.

The children readily recognized that the birds shown in the films were the same ones they were able to hold in their hands. And they could see that the data cards closely matched the films. This kind of reinforcement probably gave a depth and thoroughness to the children's knowledge of the birds. The reason we were so careful to correlate these materials was that we felt it would leave the teacher free to concern herself with the activity of grouping. With these materials she would not have to teach the children information about the birds: the children could get that on their own. Ironically, we ended up creating such a powerful set of media, that it largely eclipsed the main focus of the box: classification.

The lesson analyses give evidence for this major conclusion that the birds tended to draw the focus away from classification. Lessons in which the children are asked to group the birds by tail shape and beak length were less involving than the later lessons where the children are asked to focus upon the behavior of the birds. It seems that children are more interested in "what birds do", than they are in minute details of the birds such as tail shape. By putting physical detail first, we sought to start at the simplest level of knowledge and work up to the more complex: this seemingly logical approach was not a suitable one to take with young children.

These initial activities are a bit joyless and abstract. Great curiosity was aroused by the presence of the birds, and the children were eager to know more right away. As soon as the appeal of the game fell away, the children lost interest in the activity, and turned again to the birds themselves. We caught the attention of the children, but could not maintain it, in these early somewhat dreary lessons.

In contrast, the activities which required the children to perform more realistic classifying tasks, such as putting the birds into cages in a zoo, and caring for bird babies in a hatchery, were most popular and successful. The regretable thing was that only a minority of teachers ever got to these activities, as they were placed near the end of the sequence. However, the remarks and opinions of the teachers who did do these lessons in addition to the general drift of the findings, lead us to believe that these more full-bodied activities are better, than the earlier exercises, not only to teach about birds, but more importantly, to teach grouping.

RECOMMENDED CHANGES

In retrospect, it seems it would be better to teach classification through real grouping problems that the children would see as real. We have developed the outline of an idea which exemplifies this new direction. The "Zoo Game" would become the pivotal activity of the Box. Playing the roles of zookeepers, the children would get to know the birds quite thoroughly as they would have to consider many different aspects of the birds and their behavior in order to care for them and display them in appropriate groups.

An example of a task which could be presented to the children is the one of arranging the birds so that each would get the proper food to eat, and so that the job of feeding the birds would not be too time-consuming. They might decide to solve this problem by putting all the birds which feed on the ground in one cage, and all birds who feed in trees in another. Or, they might decide to put predominantly insect-eating birds in one cage, and "meat" eating birds in another. In any case, they would have to learn about much of the feeding habits of each bird before they could make and evaluate their groupings. The media would require much significant revision, except for the possible addition of a few more exotic birds.

In creating and evaluating the Grouping Birds MATCH Box, we have only begun to understand the implication of using a rich pool of materials centered on one topic to teach classification. One positive result of designing this Box, is that now we have a set of interesting and well-integrated materials on birds. Other designers could use this Box as a model to create units on natural phenomena for young children. The Box has proven how effective a correlated set of materials can be, in spite of inappropriate activities, to teach about a particular subject.

APPENDIX D-2
Box Report Summarized
The City

MATCH Box Project

U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

THE CITY

BY SHARON WILLIAMSON

BOX DEVELOPED BY FRED KRESSE
RUTH GREEN

PROTOTYPE COMPLETED SEPTEMBER 1965

EVALUATED FALL 1965

OVERVIEW OF THE BOX

The purpose of this box is to introduce young children to the concept of "city" and to give them an appreciation for the relationship that exists between the cities men build and the lives they live in them.

Each of the items in the Box is a rich source of information and ideas about the city. Taken together they form a set of different, yet partially overlapping conceptualizations. By exploring the city from these various viewpoints, by comparing their similarities and differences, we intend that children will acquire a reasonable image of what a city is and what happens there--an image that will enable them to make better sense out of other things they see and hear about cities. At the simplest level the image will be physical and descriptive - what cities look like and sound like. Through carefully structured activities we think it is possible, however, to go beyond mere description and convey some of the "meanings" that a city holds for its people.

MATERIALS

Record of city sounds: 10 simple sounds on one side, and 8 more complex sounds on the other. Wide bands separate the individual sounds.

Picture pool: 36 (11" x 14") photographs, mounted on cardboard, showing various aspects of city life. Usually pictures for children are simple. These are not. We chose rich and complex pictures for two reasons: (1) Cities themselves are diverse and complex. At a certain level of looking, almost every view of the city is a jumble. The pictures reflect this complexity, this richness of the city; (2) We expect the children to meet the pictures many times while they have the Box in their class. If they are to do this, then there should be something worth seeing and getting to know.

Aerial photograph: a large, 40" x 50" view of Boston. Along with the picture pool and the recorded sounds the children will use the aerial photo to identify basic elements and aspects of cities and link these to each other in grouping and matching tasks.

Two - 16mm films: "The City" - a narrated color film about Chicago, 11 minutes. This film emphasizes the physical city. "People of The City" - a black and white film about Stockholm, Sweden, city sounds, no narration. 16 minutes. This film focuses on human relationships in the city.

Magnetic City Model: About 80 wooden model buildings with magnetic bases and a 2' x 3' metal chalkboard. The model is the main item in the Box that the children can manipulate. It can be used to "plan" cities, or to model the neighborhood, as an introduction to map skills, and in connection with a city planning problem.

Various Trade Books: dealing with city issues and foreign cities.

STRUCTURE AND APPROACH

There are seventeen relatively independent lessons. The teacher selects the ones which suit her and her class. Four sub sets are mentioned in the guide: one that presents an overall image of the city and a sampler of Box materials and activities; one to focus upon the people and dynamics of the city; one to explore the neighborhood and its relation to the city; and one which would give a view of physical form of the city and maps.

The teacher essentially creates her own approach from the resources provided by the Box.

FINDINGS

Effect on the Teacher

The fourteen evaluating teachers were asked to rate each lesson in terms of its overall success. Because there were 17 lessons; teachers only had time to try about 8-10 of the 17 lessons. Thus the data we have varies quite a bit from lesson to lesson. Summing across all lessons, the results show that the teachers were quite pleased with the box experience. The lessons were rated "very successful" 56% of the time, "moderately successful" 36% of the time, and "unsuccessful" 7% of the time.

Nine out of the fourteen teachers felt the Teacher's Guide was of great use to them in preparing for the Box as a whole; four teachers found it moderately useful, and only one found it of little use.

> "Thorough but not didactic."
> "Excellent, clear, well-presented."
> "Teacher's Guide complete, but beyond second grade."

There was less enthusiasm expressed for the Guide as a help in conducting individual lessons. Teachers wanted "more alternatives to the approach","greater detail", and "more factual and clearer objectives".

When asked if the objects or lesson plans were misleading or confusing, six teachers said "no", six said "yes" and two did not respond. Commentary supplementing these responses reveal no singularly unsuccessful item or lesson. The record of city sounds, the "Intersections" game, and the film "People of A City" were each mentioned twice as being problematical, though.

Observers, whose opinions are based on, at most, three observations each answered positively, but with some reservation to the question "Did the activities work?".

> "Yes."
> "Yes, when modified by teacher."
> "Yes, fairly well when enough media were used - discussion lessons not so appropriate at this age."

One observer was somewhat pessimistic: "No, the children were quite uninterested and uninvolved".

The data from the daily lesson comments also suggest that the lessons are uneven. In the Discussion section there will be some exploration of the reasons for this.

On the more practical issues such as suitability of the box to the school facilities, and to the usual behavior of the classes, a majority of teachers gave the box a high rating. The only aspect of the Box they found disappointing was the time limitation. Twelve of them felt that two weeks was not long enough.

The observers give us another source of insights into the effect of the box on the teacher. Here are some of their answers to the question: "Have you observered any change in the teacher's behaviour toward the media?" Four out of thirteen said yes, and commented this way:

> "She is more enthusiastic about it and is impressed with the children's level of achievement."
> "Teacher did not noticeably change her style as much as her attitude toward the activities."
> "Miss ______ was a bit skeptical about the lessons, (more than the media) and I believe she feels [now] it was all quite workable and fun."
> "I think she knew what the Box intended to teach and the spirit in which the teaching was to be done."

Three out of thirteen who said "no" to the above question were still impressed by the teachers' reactions:

> "[She is] always enthusiastic."
> "She was very willing to try anything the Box had to offer, and had no trouble 'relating' to the media at any time."
> "This teacher is surprised that the Box is not as far beyond her children as she had thought."

In spite of difficulties experienced with some lessons, and the fact that the box seems about the heads of some of the classes, eleven out of twelve teachers who answered, expressed a desire to use the box again. This perhaps most fairly indicates how much the teachers valued the box.

Effect on the Children

Teachers report that the children were positively affected by the box experience: they found the materials and most activities appealing, and learned much from them. In comparison to the way they generally respond, ten out of twelve teachers said that the children showed greater interest, eight out of twelve said they learned more from them and seven out of twelve said they were more attentive to MATCH Box materials. The rest of the teachers except one reported that their children's responses were the same as usual.

Teachers were also asked to comment on what they felt their classes had learned from handling MATCH Box materials, which they wouldn't have learned otherwise. Their comments show that the box facilitated particular understandings about cities:

> "The functions of a city were clearly brought into view by the use of the city model; the interdependence within a city in order to make it a successful city, was better realized."
> "The children gained a total concept of a city---the coordination of sight, sound and experience, materials plus classroom

discussions produced a fuller understanding that would not have been possible with anything less."

"They seem to be thoroughly familiar with the intricacies of city life: they tried to build a city like the aerial map and did a good job."

"How land must be used to its fullest to accomodate people."

"The blocks helped to stress the city plan."

"When using the model, children realized all things had to be connected by streets, that certain buildings had to be included, and many had to be centrally located."

One teacher felt that the children had learned something but: "this could without question be taught and learned without the use of MATCH Box."

The children's favorite lessons were those involving the aerial map, the model, and the recorded city sounds. Some teachers felt that in addition to the above, the children learned most from the lesson in which a community solves a highway routing problem, and one lesson involving discussion of photographs. The children had difficulties with the lessons revolving around the film "People of A City" and a game called "Intersections". The fact that these lessons call for contrived discussion might explain this finding. The age level is certainly a factor, as observers point out. They reported that the box was above the capacity of at least five classes out of the thirteen they observed.

Teachers were generally positive in their remarks about the change in attitudes of the children, and their own.

"I learned that my children could reason at a higher level than I expected. They saw the diversity of their own neighborhood, and were able to see that Boston was like Chicago from the film, "The City".

"Enthusiasm high all the time. Sorry to have box leave."

"Material enjoyed and class developed excellent attitudes and understandings."

"Thought interest heightened as time went on."

The remarks included several dealing with the need for a longer period of time.

"Box used much too early and quickly in school year for first graders. Not enough time in between lessons for more stories, creative art work, group and individual stories....Felt there was learning and it was self-propelled but first graders need much longer time to explore, discover, organize, and test out information and meanings of all the material."

DISCUSSION AND RECOMMENDATIONS

These findings give us some hints about the strengths and weaknesses of this unit. There are a number of problems. The Box is not well suited to grades 1-3. Teachers said that there were activities which these children cannot do satisfactorily because of their age. It is clear from this Box that teachers' expectations and ours, concerning the capabilities of young children do differ. A few teachers remarked on how the experience with the Box led them to readjust their estimations. However, the designers agreed with the teacher in their criticism of some lessons as being too sophisticated. In fact, these lessons probably would be less successful no matter what age the children were.

Teachers liked these materials better but they felt a lack of more "creative" activities. For example, the film lessons are uninspired: the children are asked to make lists of what they saw or discuss the kinds of people in a city, based upon their memory of a film. One of the films "The City" was well liked, the other "People of a City" elicited a mixed response. The activities where the children are asked to look at a set of photos, and create "streets" or"intersections" by discussing and grouping pictures are also less successful. The problem probably was that they were not creating real streets (like they might if they used the model); they were drawing the pictures together under the heading of an idea). Another problem is the complexity of the pictures; some were quite unfamiliar to the children.

On the other hand the activities in which the children solved the highway routing problem of a small community, or matched sounds with photos and their own drawings, or built cities, towns, villages with the model, or "looked through" a magic window, and described what they saw, were more successful, probably because the children were given something to do which they could understand and in which they became involved.

There is a characteristic of this box, not directly mentioned by teachers which warrants discussion. The box sprawls. In trying to give a large smattering of images, and a number of different ways to treat the media, it simply is too big, and diverse. It covers many aspects of "cityness" and expresses a number of points of view on what a city "really" is. This kind of a box might work well at a higher level, where children have been exposed to some of the basic characteristics of a city, and are now prepared to examine it from a number of different perspectives.

The box design does not fully take into account the need for children to summon up and use the experiences they have already had. In selecting the pictures, the films, the points for discussion, and the activities, more attention should be paid to correlating them with the experiences the children have had at this age. This does not mean to sweeten the images, make the city innocent or benign where it is not. It does mean being selective with an eye to the child's experience as opposed to relying solely on our own.

One option in redesigning this box would be to create a set of media all drawn from a single city. There would be a natural correlation among the media. For example, children would reexperience certain streets in a film and photos and could try to create them with the model. This would probably make the city a more lasting experience. This box and others raise the question of whether a conception is best conveyed by an assortment of examples (which this box does) or through the thorough exploration of a specific case. Our inclination is toward the latter--being specific has the great advantage of making at least one thing very clear and vivid. Of course, such a major change does make a different box. We don't know enough at this point to firmly recommend it. However, the changes suggested earlier are feasible, without changing the media drastically, and would probably make this a better box for primary grade children.

APPENDIX D-3
Box Report Summarized
The Algonquins

MATCH Box Project

U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

THE ALGONQUINS

BY JOAN LESTER

BOX DEVELOPED BY JOAN LESTER
BINDA REICH

PROTOTYPE COMPLETED SEPTEMBER 1965

EVALUATED FALL 1965

SECTION I: GENERAL FINDINGS

AIMS

The Algonquin MATCH Box was designed to introduce third and fourth graders to the culture of the Algonquin Indians of Massachusetts, as it existed in the 17th century. Little information about these Indians was readily available. The first aim of the development team was, therefore, to translate the facts buried in anthropological reports, explorers journals, town records, and unpublished manuscripts into meaningful concepts that could be transmitted successfully from teacher to class. Media that would best carry these messages were selected for classroom use. It was hoped that, through interaction with the media, the children's stereotype of a wild savage would be gradually replaced by an image of a person not dissimilar from themselves. Children would learn that the Indian was a human being and that he, like themselves, had to solve certain fundamental problems in order to survive. They would come to know that sometimes his solution was a universal one, and sometimes it was uniquely Algonquin, but that it was always done in response to human needs. The developers felt confident that the material culture (daily life) of the Indians could be successfully communicated if artifacts were used by the children as they were used by Algonquins. An unanswered question was whether or not such object-activity encounters could also help the children to develop a feeling and respect for the Indians as people.

APPROACH

Algonquin culture was presented in three interdependent sections: Material Culture, World View and Social Structure. Understandings were to grow gradually. First, the children were introduced to daily life activities, and then to how social actions and religious beliefs were an integral part of this daily life. The introductory lessons used oversize photographs and hook n' loop board arrangements to present the "look" of a village, the interior of a home, and a sense of the varying natural environment. They were followed by lessons that described how the Indian ground corn, prepared skins, wore clothing, made arrows, and set up traps for hunting. In all of these material culture activities, Indian-type artifacts (clothing, skins, traps, arrowheads, scrapers, mortar and pestles, tool bags) were provided so that the children could use them the way the Indians used them. These object-activity complexes contained some media that would, as in Indian life, be used up: raw deerhide was scraped clean; hematite was painted on faces; sinew was twisted; and parched corn was ground up and eaten. Supplementary visual media included a map of Indian settelement, drawings of traps set up in the woods, photographs of a deerhide drying on a frame, and a pamphlet on arrow-making. The final lessons used narratives (on records), told from the Indian point of view, to describe how the Indian structured and interpreted his world. They presented Indian feelings and thoughts that children could empathize with and react to. A short story, a poetic chant, and a play developed the theme of Indian dependence on a spirit helper. Additional short stories were created to describe relationships and responsibilites within an Indian family. All these narratives provided the contexts for limited role playing, with Indian artifacts as props. In addition to the artifacts already presented, a medicine bag made from a grey squirrel's skin, wampum, and tobacco were included for these activities.

The development team also tried to deal with the concept of historical reconstructions. It was thought that once the culture had been presented, the teacher might like to step back from the reality of the media and ask the question, "how do we know as much as we do about this now extinct culture." Quotations from settler diaries, a drawing from an explorer's journals, and an early painting of an Algonquin chief were included to serve as examples of items used in the reconstruction process.

A text of Background Information was also developed. Its purpose was to supplement the teacher's knowledge of Algonquin culture and anticipate the kinds of questions that her class might ask.

SUCCESS OF THE PRIMARY OBJECTIVES

Destruction of stereotypes: Teachers unanimously agreed that Indian stereotypes had been dispensed with; children expressed new feeling for the Algonquin Indian. Statements such as "Indians are people just like ourselves," or "After all I found out from this, it makes the TV Indians look pretty silly," indicate the children were re-evaluating previously established images. Teachers reported that insights about what Indian life might have been like also evolved. The children did not actually learn to think or feel like Indians, but they gained respect for both the hardships of Indian life and the skills required to do Indian things. The girl who said, "Does an

Indian woman really grind corn three hours a day - I'm glad I'm not an Indian," was projecting, trying to envision how an Indian might have felt and clearly appreciating the effort involved in grinding. Observers and teachers also reported that the spiritual aspects of Indian life had been effectively communicated. Children were deeply moved by the way spirit helpers influenced an Indian's life.

Impact of the Object-Activity Encounter: It would appear from these reports that object-activity encounters can communicate a sense of the people, as well as of their activities. Perhaps doing acts that other humans perform is the key to this transference - it seems to bring a closeness to another people - an opportunity to respond to their world as they might have, by using their objects. We do not know how important a part the narratives played in this transference. Certainly they made the Algonquins seem more real. But according to many teachers the "human link" was established even before the narratives were presented.

The relevance of this kind of object-activity encounter to learning is pointed out by the fact that those lessons that allowed for individual use of real Indian things - Nokake (grinding and tasting corn), Clothing (trying on Indian clothes), and Skins (scraping a portion of deerhide), were consistently selected by both teachers and children as the lessons that taught the most, were most appealing, and most enjoyable.

Effect on Children: Another factor also seems to be responsible for the success of the primary objectives. The stage of development reached by Algonquin culture is, evidently, particularly suited to study by third and fourth graders. Algonquin material culture is simple enough, both manually and technically, to allow such children to duplicate Indian activities. Skins can be scraped, corn pounded, traps set up, etc. Algonquin social structure - a tribal village composed of families with a father as head of each family group - is familiar enough to appeal to and be easily understood by this age group. As to world view, children of this age can accept and sympathize with the Algonquin's deep respect for his environment, his child-like humor, his surrealistic view of the natural world and his use of magic to attain desired goals.

The children did not really understand that this culture existed in the 17th century and was now extinct. It is difficult for them to make the jump from the 20th century to a specific point earlier in time. And, object-activity encounters bring life to the objects and to the people who created them. It then becomes even harder to explain the time gap that actually exists between the Algonquins and the children.

REACTIONS TO THE MEDIA

Basic Appeal: The Box was enthusiastically received by both teachers and children. It was "good fun." Children could roll up their sleeves and really get into Indian things. They could pound away with a mortar and pestle, vigorously scrape a stretched deerhide, walk around in a pair of moccasins, set up a deadfall, and if a teacher was particularly relaxed, even cover their faces with paint. Such messy, active, unusual activities had great appeal.

Teachers felt that the richness and authenticity of the media enabled them to present a very realistic picture of Algonquin life.

Ease of Communication: Many of the media did not require a great deal of verbal explanation. The generalized functions of the artifacts were already known: clothes are to try on; food is to eat; a mortar and pestle are to grind with; etc.

Developmental Problems: Certain media did not work as well as had been anticipated. The record did not appeal to children. They seemed to tire of listening to the narratives. Apparently, just listening is too passive an activity. Perhaps children should actually be given pictures and other media to go along with the stories. Perhaps the stories should be acted out, rather than narrated. A question has also been raised about the advisability of non-professionals writing stories for children. It seems that, despite much thoughtful preparation, the subtleties and details of the narratives often had to be explained to the children by their teacher.

The film loops also were not engaging. It has been suggested that visual guides, co-ordinated with the film loops, should have been provided.

RELATION TO THE CURRICULUM

Teachers were able to correlate the Box with their curriculum. In the fall it could be used to liven up the presentation of the well-worn Thanksgiving story. At other times it provided background for studies of Massachusetts environment and history. Since the

Box describes an entire culture - its material culture, social structure, and world view - it was particularly effective in those classes that included elementary anthropology in their curricula.

THE BOX IN USE

Teachers seemed to have felt quite uninhibited about using the objects in the Box. The artifacts were not "beautiful," but they were real Indian things and they invited usage.

Teachers also seemed to enjoy having media, like hematite, corn, and deerhide, that could be used up.

Circulation of the Box has shown that despite heavy usage, the artifacts are quite sturdy. Little preparation is needed to replace the expendable materials.

All teachers felt that a three week rather than a two week loan period would allow for a much fuller presentation of the culture.

THE OVERVIEW APPROACH

The attempt to present an overview of another culture within a two week period was not successful. It did not allow for in-depth understanding of one set of concepts before still another was introduced.

Since each set of concepts was supported by artifacts, the overview presentation also resulted in an excess of media. As there was a great deal of material to cover, few of the objects in the Box were re-used enough to allow the child to become familiar with them. In most instances, just as a child became comfortable with the first set of objects, it was time to move on to the next grouping.

Rather than trying to present the "total picture" of a culture, one might cut across the culture with a unifying theme. Perhaps one activity or one ceremony could be described, in which many other cultural values and themes come into play. Artifacts could be limited to those specifically dealt with in this sub-picture. These objects would, because of repeated usage, gain in meaning as the theme evolved. Children would spend more time with fewer objects. Teacher-led activities should be replaced with group activities. If individuals or small groups could be responsible for certain sets of objects, they could really get to "know" and understand them.

THE CONCEPT OF HISTORICAL RECONSTRUCTION

The theme of how do we know about this culture should not have been included. It added a set of complicated historical concepts to an already overloaded presentation. Another MATCH Box could, by itself, be developed to show how a picture of an extinct culture is re-created via historical reconstruction.

An unanswered question remains: are such concepts of interest to third and fourth graders? As presented, they apparently did not elicit much response. Perhaps only the mode of presentation was not suited to the grade level. It is possible that the addtion of a story-line (how we arrived at our knowledge about the Algonquins) or opportunities for role playing("you be a scout from the Mayflower") would lend more life to the now unreal written record.

THE TEACHER'S GUIDE

Teachers stated that the Guide was well organized, clearly written and very useful during lesson presentations. However, it is clear from observer impressions and other comments by teachers that certain points in the Guide need further clarification. Despite the Guide's statement that flexibility had been allowed for and was expected, teachers did not seem to feel entirely free to make changes. They felt bound not only by a particular sequence of lessons but also by the suggestions within the lessons themselves.

The purpose of the Background Information was also occasionally misunderstood. Rather then using it to supplement the lesson when necessary, some teachers felt that they had to absorb the amount of information presented before they could "do the Box justice." Apparently, a re-statement of Guide flexibility and explanation of the supportive role of the Background text is in order.

THE CULTURE BOX AND ITS INHERENT PROBLEMS

Development: The Algonquin MATCH Box taught us a great deal about the development and design of culture boxes. To successfully develop a kit about an extinct culture within a limited time period, a body of detailed source material must be available to the developers. Much development time was spent researching primary sources. Additional time had to be devoted to making plausible reconstructions of social structure and world view when large "gaps" appeared. Other significant aspects of the culture, such as inter-village organization and ceremonies, could not even be alluded to for lack of information. If a living culture were dealt with, an anthropologist who had lived with the culture and perhaps even an informant from the culture should be available to describe unrecorded details.

If accurate reconstructions of cultural artifacts are desired, craftsmen must be available who are not only willing but able to create them. The "artifact concepts" of surviving Algonquin craftsmen were effected by TV westerns, availability of modern materials, and tourist acceptance of less than accurate artifacts. Since such craftsmen were not used to producing within a specified period of time, kit deadlines were, often, of little significance.

Design: Culture boxes also seem to require careful ordering of the media in the containers. Due to inadequate consideration of the design factors, teachers were presented with an overwhelming array of unsorted, unfamiliar artifacts. Often they had to rummage through the entire Box to locate the objects for a lesson or sub-lesson grouping.

We know now that a teacher should be able to open the kit, visually examine its contents, and from this rapid reading, get an overview of its organization, the number of lessons and the range of media. Second, there should be coherence within and between the media in the individual lessons. The parts of an object should be packaged as a unit; and whenever possible, lessons should be packaged together by themes.

APPENDIX D
Box Report Summarized
Seeds

MATCH Box Project
U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

SEEDS

BY GILLIAN STANDRING

BOX DEVELOPED BY GILLIAN STANDRING
SHARON WILLIAMSON

PROTOTYPE COMPLETED SEPTEMBER 1965

EVALUATED FALL 1965

SECTION I: GENERAL FINDINGS

Overview of Box

In accordance with new curriculum trends and the objectives of the MATCH Box Project, the Seed Box sets out to provide children in grades 3 and 4 with living things and other real materials for experiments. The results of these experiments focus on the fact that fruits and seeds can travel in a number of ways, and point to some reasons why this travel is beneficial to plants in general and to the relationship between a fruit's structure and its method of travel. The lesson plans are intended to emphasize the value of "discovery" in learning by young children and to set a pattern for their future studies in science. The materials in the Box include both familiar and unusual objects to be examined and handled by the children in a variety of ways. The lessons are structured to help the teacher reach the intended learning results with a minimum of extra preparation for each lesson. The topic of Seeds fits into the majority of elementary school curricula and may be taught at any grade from first to fifth, on its own or linked up with studies of spring, trees, conservation, plant and animal reproduction, and other topics.

General Findings

From the teachers' reports after using the Box, it seems that the fruits, seeds and other materials were popular, easy to handle, and basically exciting to the children, and that most of the teachers were pleased to be able to use materials which would otherwise have been difficult or impossible to obtain. The chief criticism about the media was that there were just too many to use effectively in a two-week period, especially since the majority of teachers can spend only one hour a week or less on science subjects. Some teachers thought that there was too much variety in the living materials and asked for larger quantities of fewer types of fruits and seeds, while others suggested a month as a more reasonable time in which to use the Box. Some of the materials would have been easier to handle in a large class if they had been packaged in some other way, but, on the whole, they were used enthusiastically as directed in the Teacher's Guide. There was also general approval of the background information provided for both the children and the teacher.

The main fault of the Box seems to lie in our conception of the activities. While the "discovery method" is emphasized throughout, it was not appreciated that children in grades 3 and 4 (and their teachers too, for that matter) cannot discover all the important facts about an object by chance, merely by investigating it on their own, however many times they do this. This meant that several of the teachers found it necessary to spend considerable extra time preparing the lessons to be ready for all events but were not sure what the children had learned as a result of using the materials in the Box. Questions to which fairly definite answers can be found would have helped the teachers to direct the children's investigations and to select what is relevant from the great number of discoveries made. These questions would be helpful in preparing lessons for a particular class's needs, also.

In the same way, specific problems involving the "behaviour" of the fruits and seeds should be set in each lesson for the children to solve by experiments, either individually or in small groups. Then, the answers could be pooled to give everyone a chance to relate his own discoveries to those of the rest of the class without having to repeat exactly the same experiments as everyone else. Also, definite guidance on how to examine and experiment with the materials must be given: how to go about opening up a fruit; how many seeds to plant; how much soil and water to use; the height from which to drop or throw the seeds; how long to let them float, etc. Then, even a teacher inexperienced in science can see that her class obtains reasonable results and that the least adventurous children can still learn something valuable.

Another aspect which needs to be emphasized in the Teacher's Guide to give the teacher more confidence in using the materials is that unexpected and apparently contradictory results of experiments are often more valuable than those which can be predicted, as they open up discussions and can lead to further spontaneous experiments thought up by the class. In fact, no specific results should be looked for or predicted to the class by the teacher, as this often has the effect of cramping both the children's investigations and their observations. It is difficult not to tell the teacher what to expect when she conducts her lesson in a particular way, but she should be urged to let the children experiment freely without always knowing what will happen.

The activities suggested in the Teacher's Guide seem to fall into two groups: the very active ones, in which the children are doing something throughout; and the very passive ones, in which they merely listen, draw, or write. Perhaps, a way could be found to combine these two extremes in each lesson so that they become better balanced, since this contrast was pointed out by several teachers. Some teachers left out the passive lessons altogether, while others seemed a little alarmed by all the activity which occurred in the active lessons. Also, a less rigid structure and order to the lesson would allow teachers more opportunity to adapt the activities to the needs and abilities of their own classes. The teachers who helped us by using the Box in the evaluations naturally tended to stick closely to the lesson plans in the Guide. In the future, greater flexibility and spontaneity in the use of these materials will probably occur.

APPENDIX D-5
Box Report Summarized
A House of Ancient Greece

MATCH Box Project
U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

A HOUSE OF ANCIENT GREECE

BY CYNTHIA COLE
NANCY OLSON

BOX DEVELOPED BY RICHARD COLLIN
CYNTHIA COLE
NANCY OLSON

PROTOTYPE COMPLETED SEPTEMBER 1965

EVALUATED FALL 1965

SECTION I: GENERAL FINDINGS

Aims and Approach

The Greek Box introduces children of grades 5 and 6 to the everyday life of an ancient Greek household and to archeology as a tool for learning about people's lives long ago. Its emphasis is not so much on gathering facts as it is on the process of sifting through evidence from the past, and drawing conclusions from this evidence. The children look at pictures and life-size copies of objects that might have been unearthed in the Villa of Good Fortune, which was excavated in Olynthus, Greece, in the 1920's. From this study they piece together a picture of life in this house 2,300 years ago. Essentially, the children play the role of archeologists. They are divided into teams which work independently to solve their own archeological puzzles within the house, deciding what their part of the Villa was used for.

Statistical Audience

As laid out in the Teacher's Guide, the Box proposes 8 main lessons (A-H) as well as 2 pre-Box activities and 1 post-Box lesson to be used by the teacher if she wishes. Nearly 100% of the 15 teachers who evaluated the Box during the fall of 1965 used some form of the 8 major lessons, and most of these used them as outlined in the Guide. About half the teachers used one or both of the pre-Box activities, and about half also used the post-Box lesson.

Overall Rating

In general the evaluation showed the Box to be successful, and to have elicited high enthusiasm from both teachers and children. In an overall success ratio of 1 to 5, teachers placed the Greek Box at 4.5. Teachers' responses to the success of individual lessons was as follows: 87 responses of "very successful," 28 responses of "moderately successful," and 1 response of "unsuccessful."

Observers concurred with the teachers. There were 33 responses of "very successful" on individual lessons, 15 responses of "moderately successful," and 3 responses of "unsuccessful." Responses on all evaluation forms about other general aspects of the Box were also overwhelmingly favorable. The teachers felt that "children's attention," "interest in the subject," "class discussion," and "apparent learning" were "more than" usual. The observers echoed this in reporting that the children's high level of attention was "due to interest in the lesson, not politeness." The observers felt, further, that the Box achieved what it intended to, as stated in the aims. One observer commented, "Yes, I'd say the children learned a lot about Greece, and more about the process of discovery, analysis, sifting information, etc. The children worked intelligently."

While the teachers did suggest minor changes, their evaluation forms were filled with statements like:

> "One of the most exciting aspects of the Box was experiencing a well developed curriculum and seeing how each day was built upon the day before."
>
> "The Project stimulates me to feel that a strong bond between teacher - individual child - material has become much stronger."
>
> "All the time they are becoming more scientific in their observations. This is a truly multigraded project; every child has contributed. All children are on an equal footing and this is so important as our range is so great."
>
> One teacher observed that the children's response to the objects was "Almost 'grabby,' like feeding puppies meat."
>
> "Logical evaluation by children; children could perform methods of inquiry without having detailed instructions from the teacher."
>
> "Many doing research on their own."
>
> "Today it was wild. Bordered on chaos."
>
> "One boy came into his own....I am sure the MATCH Box experience was wonderful for him."
>
> "Children who normally are quiet or only seldom responsive participated well during the entire unit."
>
> "Stayed involved for 1 and 1/2 hours - unusually long for 4th grade to stay thoroughly involved."

> "As one boy said, 'Oh, boy! We didn't have to read any books, we just worked with the real things.'"

Discussion of Findings

While we were designing MATCH Boxes, our ideas on what makes a good MATCH Box slowly crystallized into a list of criteria. This list is always uncrystallizing and recrystallizing as we learn more about children interacting with media. But, since this group of criteria provides some concrete and tested standards to compare MATCH Boxes with, we will now discuss how the House of Ancient Greece measures up to the list.

We will be interpreting the data from teachers and observers in the light of what has happened in the MATCH Box Project as it has continued through the 2nd Generation, including all the Project thinking that has occurred since the Greek Box was designed. Sometimes the questionnaires do not have data about issues turned up more recently by the Project staff; then we must trust our intuitions a little more than we would like. Yet, when there is no specific data to support our statements, we find that the data as a whole generally supports them.

Following is a discussion of the House of Ancient Greece in the light of some characteristics of MATCH Boxes.

Relationship of Box to Whole Project

The Greek Box made an initial attack on some issues and problems that specially concern the Project:

1. arranging the children in small groups, working alone, independently.

2. sequencing the whole Box for drama and a sense of suspense, with each lesson building upon the previous one.

3. using a filmstrip with talk as an opening dramatic motivator.

4. using role playing.

5. establishing problems and puzzles within the Box, to be solved by the children.

Relationship to Curricula

The subject, Ancient Greece, is traditionally studied in the elementary schools. However, the Box approach differs from the traditional approach in several ways. One of these is its emphasis on the everyday living of the Greeks, while another is its focus on archeology and the setting up of an archeological puzzle for the children to think through and solve.

Loanability

Maintenance has been a problem in this Box. Some statues, pottery, and other things have been broken or chipped. It seems that there must be materials durable enough to be used for these items, but we now have no information to support this idea. Packaging has been a problem too. The smaller articles need to be packaged in a special way so that they cannot be lost and can be checked easily. The whole Box needs to be packaged so that its parts can be easily found when they are needed in each lesson.

While the cost of the Box in hand-reproduced quantities is high (about $800), the cost in mass production quantities would probably be low enough for many school systems to buy.

Relation to the Teacher

The Greek Box displaces the teacher from her traditional role as a repositor and dispatcher of knowledge about a subject. In many of the Box lessons the teacher is a fellow researcher, working with her class to solve their archeological puzzles. She need not be an expert on Ancient Greece, partly because the sources of information - the objects - are put directly in the hands of the children, and partly because the children are urged on to independent research to answer their own questions. As a consequence, teachers report preparation time is not a burden. The teachers were pleasantly amazed at the amount the children learned and at how smoothly and productively they worked in groups.

Sixty-seven per cent of the observers felt that the lessons did not require the teacher to be middleman between media and children. The observers also noted that there was not much "answer pulling." The reason for this may be that the Box suggests strongly that there often is not just one right answer, and that the "answers" are inherent in the objects themselves.

Media Characteristics

There is something very right and uncontrived about the major media: the artifacts. It comes from the fact that they are unquestionably necessary to the main activity of the Box, an archeological "dig." These artifacts are a rich source of information by themselves, without much verbal explanation; the films, pictures, and verbal materials supporting the artifacts all interact well with each other. On the questionnaires teachers and observers stated that the media led to the objectives of the Box and were appropriate to the topic.

We feel that some of the artifacts tend to be too academic, not as interesting to children as they might be. Suggested changes are in Section III. Even in their present state, however, we feel that children learn well and efficiently about Ancient Greece from such artifacts as the bronze strygil used in taking an oil bath, the delicate golden earrings, the rough pottery oil lamps, and even the lamb knuckle bones used in a children's game.

The Guide

The teachers liked the tone, style, length and amounts of materials in the Teacher's Guide. Thirteen out of sixteen found it of "great use" in preparing for the Box as a whole. 11 out of 16 found it of "great use" in preparing for individual lessons.

Activity Characteristics

Since the major activity - playing the role of archeologists - parallels one in real life, it is an uncontrived one, rewarding to both children and teachers. There are probably two reasons why this archeological teachnique has been particularly effective: 1) enacting the role of an archeologist is adventuresome and emotionally stimulating; 2) the intellectual challenge of solving an archeological puzzle is fun and involving.

The activities were designed to involve all the children, and they achieved this nicely. There seems to be a good mixture of group work and total classwork with some place for independent work by individual students. This provides a variety of ways children can learn and contribute to the total class effort. The Box also offers the children various avenues of response, such as practicing inferential thinking, acting out skits of Greek activities, and doing independent research. Group work went more smoothly, of course, in the classes that were accustomed to it. In many classes that were not used to group work, both teacher and children found it rewarding and exciting. Some teachers noted that the children were so highly motivated by the Box that they solved some of the social problems that usually exist when they work in small groups.

The Objectives

Underlining our design of the Box were two major objectives:

1. introducing children to the everyday life of Ancient Greece in a way that would help them empathize with these people.

2. giving the children a chance to practice inferential thinking through solving an archeological puzzle.

Both teachers and observers felt that these objectives were achieved.

When media used in a particular way lead to a stated objective we say that there is a line-up of Objectives, Media, and Activities. We feel that this kind of line-up of OMA's occurs in the Greek Box. When the OMA's do line up, we feel this is a good indication that the Box will work. This was borne out in the data from both teachers and observers.

Staffing - Team

Through external chances three people influenced the Box at different times in a major way. Their particular contributions were: 1) interest in the subject matter and the objects themselves; 2) interest in the educational objectives and the transfer of concepts; 3) interest in the overall dramatic construction and the design of the lessons. It occurs to us now that these talents can be roughly pigeonholed into "media," "objectives," "activities" - the OMA. Perhaps, all teams making MATCH Boxes should be careful to have available a person or people representing each of these interests.

From our experience with the team we would suggest that regular meetings with the same people are not necessarily helpful. Rather, meetings should be held when needed (this means often), with consultants chosen because they can contribute to the particular questions or problems harrassing the Box at that moment. We feel that brainstorming groups are particularly effective at certain times, and that critiquing is an especially helpful way to keep the Box alive and on the track.

Elegance

There is a wholeness about the Greek Box. It begins with an expedition to Olynthus, Greece; goes through a "dig" and an analysis of the "finds;" and ends with forming some feelings and facts about how the Ancient Greeks lived in Olynthus. There is really no part of the Box that does not add to this central experience of going on a dig, except the optional Post Box Lesson, which we suggest dropping. Each lesson leads to the next, adding on to the experience of the last, growing and culminating to a climax as the children discover how each room was used by the Greeks. This expedition to Olynthus is uncontrived; it is a thing that happened in real life. Perhaps, this quality of "ringing true" is what pleases the children so much.

APPENDIX D-6
Box Report Summarized
Houses

MATCH Box Project

U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

HOUSES

BY CYNTHIA COLE

BOX DEVELOPED BY CYNTHIA COLE
EDITH SCHROEDER

PROTOTYPE COMPLETED SEPTEMBER 1966

EVALUATED FALL 1966

SECTION I: GENERAL FINDINGS

It is difficult to assess the strengths and weaknesses of the Houses Box since its evaluation data yields such a variety of extreme responses on a number of questions. While the Box is near the top of the 2nd generation group in the number of teachers who gave it a Very High Success rating (7), it received more Low (1) and Very Low (2) ratings than the other Boxes; while several teachers insisted the Box and its topic were inappropriate or too advanced for first and second graders, other teachers and observers felt it was well geared to interests and abilities at this level; while many teachers felt the films were the most effective and well liked lessons, a few singled these out as the worst ones; some teachers said the mud building lesson was the best, others that it was the worst. And so forth.

OVERVIEW of BOX

The Box aims essentially at encouraging children to accept cultural differences by pointing out that there are reasons why people live in different ways in different parts of the world. As the Teacher's Guide states:

> "Houses have been chosen to explore this idea since shelters of some kind are common to all people. But the many differences between houses show that where people live influences how they live. By comparing an Eskimo igloo to a Nigerian mud and thatch house, the children can see that different physical settings call for very different ways of life and kinds of houses."

The Box also hopes to give children a chance to practice various mental processes such as reading objects or pictures for information, sorting and grouping, isolating similarities and differences, drawing conclusions, etc.

In the first four lessons outlined in the Guide, the children see two short films about Eskimo house building, assemble a model igloo, play with it and a family of Eskimo dolls, scrape and sew animal skins as examples of the real building materials available to Eskimos, and 'read' or group about 40 pictures of primitive Eskimo home life.

In the next three lessons the children see a film about Nigerian village life and house building, use the Nigerian Picture Pool in various ways, play with the model mud and thatch house and its Nigerian doll family, and finally build a small section of wall with real bamboo and mud. The last, eighth lesson suggests that pictures of other houses from around the world be examined and compared to Eskimo and Nigerian ones.

The Teacher's Guide consists almost entirely of descriptions of the Box media and suggested ways of using these. The lesson plans for 8 days are all fitted onto one page, each only a sentence or two long. The teacher is urged to pick and choose among the suggested activities, and to change and adapt as seems necessary.

The teaching approach - as reflected in the Guide's format and contents - assumes that the teacher will use the Box as a base point from which to branch out in various directions as suggested by the children's needs and interests. Indeed, the loose structure of the Box made heavy demands upon the teacher to be creative in her use of the media and responsive to the children.

GENERAL FINDINGS

Teacher's Reactions to the Box

Twenty four (24) teachers responded to our questionnaires and, in the most general sense, it can be stated that these teachers and their children responded favorably to the Box. They liked the Box media and used them as intended. Most of the 24 teachers followed the lessons as described in the Guide and used them in the order suggested. A number also incorporated Box ideas into other parts of the school day, especially with art or language-arts lessons.

Most (20) of the teachers made comments such as:

> "It was wonderful to have so many materials available for the children; it made the unit a rewarding experience for them as well as for me."

> "I enjoyed seeing the children involved with real materials."
>
> "Pupils were eager and that made teaching pleasant."

However, the Box's relationship to the teacher is not clear-cut. On the one hand, neither the informational content nor the media proved particularly difficult for the teacher to deal with, and most teachers did not find the amount of preparation overwhelming. On the other hand, the lack of detailed lesson plans made some teachers feel uneasy; some of them were also unfamiliar with the Box's anthropological point of view, and unprepared for the spontaneous creative classroom direction often required of them.

On the Final Appraisal form, most of the teachers (88%) felt they knew what they were doing with the Box, thought the children knew they had learned something, thought the Box functioned as a unit and was not just a collection of parts, and would use the Box again. A slightly smaller percentage (75%) felt the learning outcome was worth the time and effort, while another 8% were unsure.

While about a third of the teachers reported no significant change in their relationship to the children, the rest felt they had experienced an increased closeness to the children or that more friendly talking had occurred between them and the children or among the children themselves.

Comparing the Box to the usual ways of handling the same subject, most teachers found it more interesting and enjoyable and were glad to have visual and manipulative materials readily available. But 2 teachers felt these materials were not very different from their own, and 2 stated that the topic could never become a part of a first grade curriculum.

When asked to illustrate what their students got out of the MATCH Box experience, most (19) said the children were remarkable attentive, used their free periods to play with the materials, or brought in additional reading matter about Eskimos or Nigerians. Two teachers commented that written classwork was not up to standard and that much needed drill time suffered. Most teachers found that oral expression improved or increased, and several reported gains in group work ability. Most teachers said the Box elicited interest from parents or other teachers, and that the children were inspired to bring in objects or reading matter from home, but several said there were no outside effects or comments.

Responding to the question which asks if the MATCH Box approach made learning easier, better or more fun, 17 teachers said it was easier and more enjoyable for both teacher and child but one or two still favored drill in fundamentals. One Lowell teacher wrote, "It is more enjoyable for the pupil but these children thrive under scheduled drill, quietness, and love. They have much excitement at home."

The majority did not feel a test, per se, was needed. This was mostly because, as one teacher stated, "the children were very verbal in what they were thinking and learning and I felt I knew what they were absorbing." Several teachers used the Picture Charts as tests or ways of reviewing the unit and determining what had been learned.

Evaluation of Other Aspects of the Box

Choice of topic: The topic of HOUSES for a primary grade unit seemed generally to be accepted by teachers who often take up similar topics such as Shelter or Family Life. But it is also true that response to the Box varied according to the teacher's cultural and pedagogical attitudes and to the age and background of the children. Our interpretation is that more positive responses came from teachers with a broad world view who were concerned with thought processes rather than with imparting information, and from teachers whose students were at least on a second grade level by virtue of age or maturity. *1

Several teachers objected to the use of houses so different and so far away from the children's everyday life because they felt that young children simply could not understand anything beyond their immediate environment. Two of these teachers were older women who seemed unaware of the degree to which children are exposed to references to other parts of the world by television or other mass media. However, in one or two cases, teachers did have classes of particularly immature children, and they also had no time or Box materials to prepare these children for such a topic as Houses in another culture. For example, one Lowell teacher reported that a first grade child in her room did not know the word "wall" for

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*1 With this in mind, the Box is being listed now in the Museum's Loan Department as suitable for 2nd through 4th grade level.

the sides of a house.

Another problem with the topic Houses is that most teachers interpreted the Box as being concerned with two cultures, rather than just with houses between cultures, and used the occasion to introduce their students to the total way of life of Eskimos and Nigerians. This altered the intended emphasis of the Box and led some teachers to request the inclusion of additional items in the Box to show other aspects of the culture such as clothes, songs, or pictures of school life or modern transportation. This two-cultures interpretation made some teachers feel the Box did not convey an accurate picture of each culture, which it never intended to do. Also, within such a two-culture interpretation, the Box materials do indeed fail to counter the limited stereotyped ideas the children may have of the peoples such as "all Eskimos ride on sleds and live in igloos."

This reinforces the notion that the Box topic is more suitable for older elementary levels. It should perhaps be used with students who, by age or experience, can be assumed to have some cursory knowledge of Eskimos and Africans and with whom teachers will be willing to deal only with houses or, better yet, use the two houses as part of a substantially longer unit which compares a number of aspects of the two cultures, including their present states of change and development, etc. A major issue at one point in the Box's development was whether or not to focus on 5 different houses in order to emphasize cross-cultural comparisons and the idea that different environments require different house styles. The five considered most seriously were the pueblo, the yurt, a Kikuyu mud and thatch hut, the igloo, and the New Guinea wood and thatch hut. Our final decision to consider only two very different houses was based on the notion that first and second grade children could not deal with five houses meaningfully in eight short lessons within a two-week period. While probably the correct decision to make, it led us into the other problems mentioned above.

Two other points of discussion during the development of the Box were whether or not to use small scale models of the houses in question and whether to have the children build such models. Some people thought the scale models could mislead the child into thinking that the small size was the real size. However, since children have traditionally played with smaller-than-life-size reproductions of reality, and since some research argues for the benefits of such pretend play with miniature environments, scale models of the igloo and the Nigerian house were included. We also decided that to have the children build such models would be more an exercise in finger dexterity than in understanding house-building concepts. Our evaluation data seem to support the validity of these decisions.

Time: As has been true of the other MATCH Boxes, nearly all teachers want the Box longer than the alotted two weeks; three to four weeks is the time most often suggested. As one Arlington teacher wrote, when MATCH Boxes are used in a concentrated two-week fashion, they "arouse the children's interest but allow no time to broaden it." One teacher felt at first that there were not enough materials for two weeks, and then realized that endless directions could be pursued if time allowed. Another teacher commented that, with time and familiarity with the materials, a teacher feels more secure and begins to draw on her own experiences and knowledge to adapt the unit to her students' needs.

Loanability: From a practical point of view, the Box has not been too difficult for the Museum's Loan Department to maintain and replenish. The films, picture pool photographs, and animal skins have been returned in good shape, and the two house models - which make up the bulk of the Box - have held up remarkably well. There are not too many small items to keep track of, such as the doll families, bone needles and sinew.

The Give-Away package, with the mud mixture and the bamboo, is the chief item requiring periodic production time and effort. (The inclusion of palm leaves for the roof section was abandoned early in the evaluation because of shipping and storage difficulties.)

Packaging: The cardboard packaging has turned out to be less than ideal for a Box which nearly all teachers lamented as being too heavy. Two styles of fastenings - metal grommets and hook'n loop tape - have both proved inadequate to keep the Box closed, and the cardboard is getting scuffed. However, the interior design has protected the contents and made it easy for teachers to repack the items.

Guide: The Guide received favorable comments from nearly all (22) teachers, who considered it "most adequate." Some teachers wanted more structure and details for each lesson, and a few wanted more activity suggestions, more information about the two cultures, and enlarged bibliographies.

Books: Most teachers like the books in the Box, although some wanted or got more from their school Libraries. Several teachers thought the books were too difficult for the reading level of their children, and some suggested that there should be more copies of each book so several children could read a book at the same time.

Note on the evaluation: The evaluation situation inevitably casts a special atmosphere over the teacher's use of the materials and her sense of freedom to change, omit, or add to the Box. Just how much difference this makes, and when, we cannot be sure, but three teachers made the following kinds of comments:

> "I felt pressured to get all the activities in plus evaluate what the children were learning."
>
> "Felt under pressure to do this at the same time each day and every day."
>
> "I was irritated when presented with these materials and told that plans were to begin the next school day."

SUMMARY of GENERAL FINDINGS

The chief successes of the Box appear to be:

1. The loose structure of the Box and minimum lesson outlines challenged some teachers to greater inventiveness and independence than was their usual style.
2. The necessary deployment of children into small groups to share objects and activities fostered interactions between children and allowed for more independent thinking and task accomplishment.
3. A number of teachers utilized the opportunities in the Box to help children practice careful observation, to make inferences and follow implications.
4. The Box materials made children aware of other styles of living and helped them feel that other people are "just like us" in many ways.

5. Most children used the films, pictures, and 3-D materials as sources of information instead of relying on words from a book or from the teacher.

The chief problems of the Box are:

1. For many teachers the structure is too loose, and lesson outlines not detailed enough. Some teachers did not feel sure at first what they were supposed to do.
2. The Box seems most suitable to children who, by age or sophistication, are between second and fourth grade level, and to teachers who believe children should be exposed to knowledge of foreign cultures at this age.
3. In some cases, stereotyped images about Eskimos or Africans were not counteracted by the Box materials.
4. The Picture Pools did not work well as sorting activities.
5. In terms of our MATCH Box criteria of Elegance, the Box does not sit squarely in the center of an alignment between objectives, media and activities. Simply using the media as outlined does not automatically lead to the objectives; the Box does not ring entirely true. There are at least three reasons for this:
    a. The Box topic deals with an element of two cultures (houses-homes) while most teachers want it to deal with the whole of two cultures.
    b. It does not fit its audience squarely. It assumes the children possess more cognitive skills and informational background than may be the case.
    c. The teacher's attitude toward cultural differences and children's capabilities affect the Box's success too much.

APPENDIX D
Box Report Summarized
Animal Camouflage

MATCH Box Project

U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

ANIMAL CAMOUFLAGE

BY ERMA HIRSCHFELD

BOX DEVELOPED BY GILLIAN STANDRING
ROBERT BERNATH

PROTOTYPE COMPLETED SEPTEMBER 1966

EVALUATED FALL 1966

SECTION I: GENERAL FINDINGS

OVERVIEW of BOX

Conception and Approach

It is difficult in most elementary school science classes to give more than a superficial view of nature. Seldom are the children introduced to dynamic forces and realistic problems in such a way as to develop a true appreciation of the plant and animal world. In developing a MATCH Box on Animal Camouflage we felt we could provide a study in depth of one important part of animal life - the problem of survival.

Our original ideas for developing a MATCH Box on Animal Camouflage received much enthusiasm from the staff. The subject of animal camouflage seemed to measure up to criteria we had developed at the time for MATCH Boxes: 1. The topic was related to the present science curriculum in the elementary schools; yet, the Box would be a valuable innovation by providing a depth study. The idea appealed to many teachers to whom it was suggested. A two-week period seemed a reasonable time for presenting the topic and teacher preparation would be relatively low. 2. There was great multi-media potential which would implement better learning and more efficient teaching. 3. There seemed to be many activities which could involve all the children. Ideas for activities included ones in which the children themselves became the camouflaged objects among props of various colors, patterns, and textures; and games which would center around the detection of well-camouflaged animals and objects within pictures and dioramas. 4. The topic was a "real one" involving an important aspect of nature. As such it would be meaningful and worthwhile.

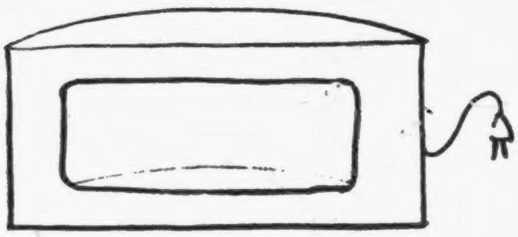
In its present state, the Box includes few of the original design ideas. However, the objective remains the same: to teach children of the primary grades about the particular relationship existing between animals and their environment, which affords the animals protective concealment and disguise. To accomplish this purpose a series of five lessons to be used over a period of 2 weeks were developed along with special materials and objects to make the various aspects of the camouflage concept more meaningful and vivid.

A conventional approach was taken in the design of activities. They are mainly teacher-directed. The children participate in the solving of ready-made problems. The Box simply provides the materials and the drama to make the concepts more concrete and to stimulate active interest in the subject.

Materials

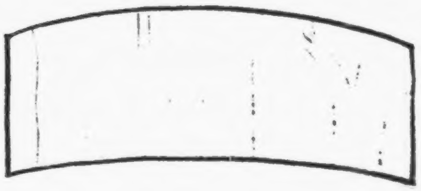
The following materials constitute the Animal Camouflage MATCH Box:

The Shadow Box



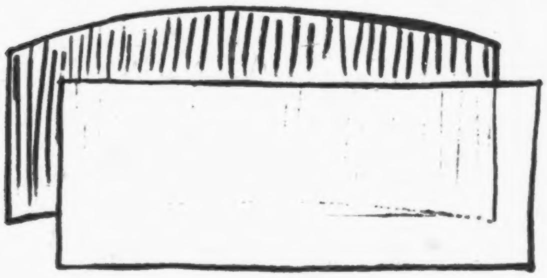
This is a large box (28x18x6) of heavy cardboard with doors which open out in front to form a kind of stage. It is equipped with rows of lights along the top, bottom, and sides which operate on two circuits for separate control. In this way outdoor lighting and overhead sunlight can be simulated. The box also serves as the container for all the materials in the Animal Camouflage unit.

Three Background Panels



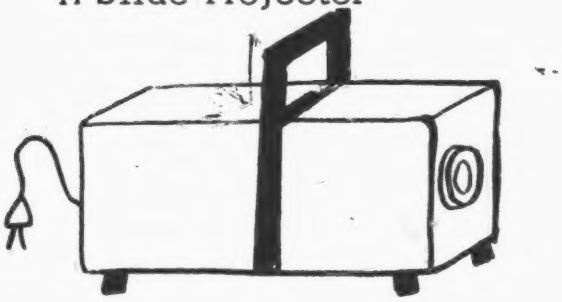
These panels provide the backdrop for various scenes and camouflage problems. They are made of steel and fit into grooves at the back of the Shadow box. There is one woodland scene, an underwater panel, and a blue panel with a "wallpaper" pattern. The reverse sides are of plain colors and can also be used.

Two Acetate Overlays

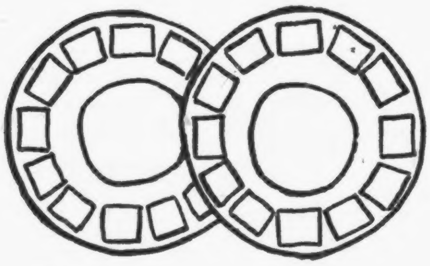
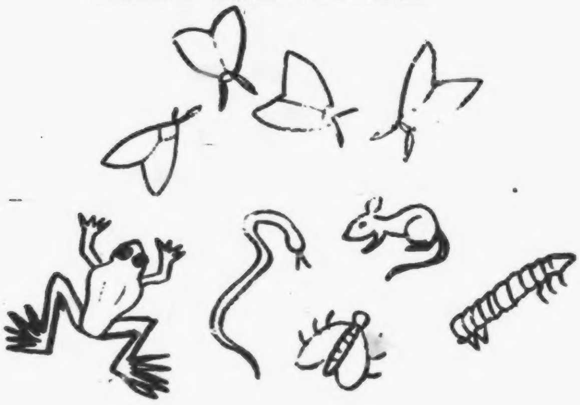
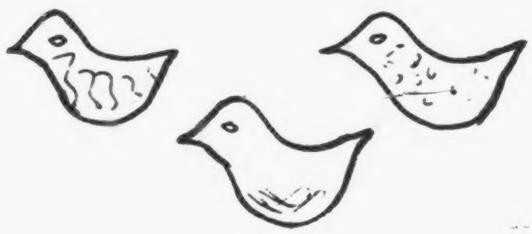
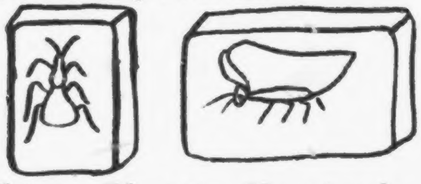
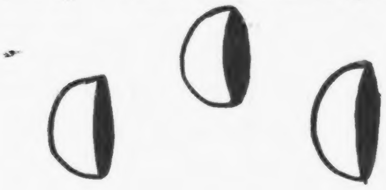


These depict "rocks" and "grass". When placed over the plain backgrounds, they add a pattern to the background colors, thus creating new "environments" in which to hide model animals.

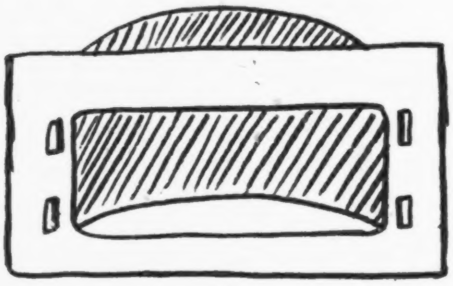
A Slide Projector



The projector chosen is one simple enough for the children to operate themselves. An extra projector bulb and an extension cord are also included.

Twenty-four Slides 	The slides illustrate camouflage in a number of different animals by showing them in their natural habitats. They include giraffe, tiger, birds, insects. A brief description of each animal is included in the Teacher's Guide. The slides are held in two 10" discs. The discs fit into a slot in the top of the projector and are rotated manually by a lever.
Moths and Animals 	Colored pictures of moths are mounted on cardboard; the animals are made of a composite plastic. All are backed with magnets so they will stick to the steel background panels. When placed in various positions and in various areas of the backgrounds, relationships between the animals and the environments that make for good or poor camouflage, are revealed.
Thirty-six Model Birds 	Eighteen flat birds are made of heavy cardboard; eighteen 3-D birds are modeled of polyurethane foam. All are painted with great variety of color, pattern, and shading. Magnets are embedded in each for use on the background panels. They are used with various backgrounds to illustrate the importance of pattern, color matching, and countershading.
Insect specimens 	Each is a striking example of camouflage. They are embedded in clear plastic and thus can be handled and viewed from all sides.
Thirty Plastic Hemispheres 	These become mythical animals called Yangs for the children to camouflage. To make them blend into the "wallpaper" background, the children draw patterns on them and shade various sides.

Thirty Dioramas



One is included for each child in the class to keep. They resemble the large shadow box and are made of two pieces of lightweight cardboard which fit together with tabs. The top is left open to admit "sunlight" from overhead. In these, the children construct their own well-camouflaged scenes, designing both the background and the object to be camouflaged.

The Lesson Sequence

There are five lessons. In the first lesson the teacher conceals moths in a woodland scene in the Shadow Box. From their seats, the children act as "predators" trying to discover the animals hidden in the forest. Later in the same lesson, groups of children take turns hiding the moths. A game is played in which points are earned for being both good hiders and good detectors of the prey in the Shadow Box. In this way the children are introduced to the idea of camouflage and become aware of what makes an animal difficult to see.

In the next lesson they become acquainted with the wide range of camouflage in the animal world by observing slides of actual animals in their natural habitats. In some of the slides the animals are so well camouflaged it takes a sharp eye to discover them. Discussion with the teacher while viewing these slides helps the children recognize the various elements of camouflage touched on in the first lesson.

In the third lesson the children match model birds to the background on which they are best camouflaged in an effort to isolate various factors that determine how well an animal is camouflaged. They have a chance to apply what they have learned up to this point and to build on this knowledge. As the 3-D bird models are used in addition to the flat models the children become aware of still another element of camouflage - countershading.

In the fourth lesson the teacher reads the children a myth about an imaginary animal, the Yang. The Yang leads a very special life as the magic pet of the King of Ying. The King's men guard the Yang by seeing that it always matches its surroundings. In this way it is well hidden from enemies. The children are given their own "Yangs" (plastic hemispheres) and attempt to camouflage them so that they blend in with one of the "wallpaper pattern" panels designed especially for use with the Yang story. This lesson focuses primarily upon camouflage by pattern matching and countershading.

In the final lesson each child in the class is given a cardboard diorama which he may keep. In the diorama he creates a background, and either makes or finds a creature to be camouflaged against that background. In this way, he can use what he has come to understand of the total camouflage concept.

FINDINGS

The findings summarized below are from twenty-one teachers who evaluated the Camouflage Box in their classes in the Fall and Winter of 1966. More detailed data can be found in the individual lesson analysis which follows this section. Here it seems most important to consider the effect on the teachers and children using the Box and the overall success of the materials, the activities and the approach.

Effect on Teachers and Children

Teachers were asked to compare using the Box with their usual classroom activities. "Class interest" and "apparent learning of subject matter" were rated by teachers on a scale of "more than usual", "same as usual", and "less than usual". Sixty-eight percent of the teachers rated "class interest" as "more than usual". Fifty percent felt "apparent learning of subject matter" was "more than usual". Their comments illustrate these statistics.

> "I was a little surprised by the delight the children expressed in their daily question, "Are we going to do the MATCH Box today?"
>
> "The children have become more observant since our camouflage lessons."
>
> "The children were more involved personally; it did not require reading so the poorer readers got as much or more than the good readers."
>
> "The box seemed to stimulate the quieter children and then they spoke up offering excellent ideas and observations."

> ".....the experience for the children is so vivid I feel they will retain and appreciate this understanding of a natural happening."

Teachers also expressed the fact they themselves benefited from the Box:

> "I gained a better understanding of my group and their special interests and talents."
>
> "It has been an interesting experiment and I believe has helped me to develop an attitude of learning because I want to learn, not because I have to learn."
>
> "I hope to use some of the ideas when teaching this subject again."

Overall Success

In terms of overall success, 18% of the teachers rated the Box Very High, 64% rated it High, 9% rated it Average, 9% rated it Low.

Nearly all (91%) felt it functioned well as a unit. 64% felt the materials could stand on their own, while 36% felt they required much explanation.

82% stated the learning was worth time and effort and the same number said they would use the Box again if available.

Teachers were quite enthusiastic in their general retrospective appraisal of the Box, especially in its effect on the children. They were certainly very stimulated by and involved in this experience.

The Approach

In their evaluation of specific aspects of the Box, teachers were not as unanimously satisfied. In regard to the approach taken in the Box, individual comments from the teachers seem to point up more of these significant issues than any statistics that we gathered.

Some sounded very pleased:

> "This is teaching!"
>
> "I think the lessons were very well planned."

> "It was more exciting - variety of teaching techniques - truly teaching."

> "It makes learning more fun because to young children especially, a box with things to touch in it is very exciting."

> "Learning is not much easier but is more fun; it holds the children's attention much more than other techniques."

One teacher felt that the approach though better than usual, presented some problems:

> "It is far superior to the usual method but we would have to give back to the other subjects time from them in the following weeks."

Others did not consider it an innovation, or a great improvement:

> "Its not different, but its convenient."

> "I did not feel the Box offered anything new in the way of materials or techniques. We already use slides, books, make dioramas and give oral reports talking about things we want to share."

Finally, there were the teachers who felt it did not suit their classes very well:

> "As an introductory experience it assumes too much previous knowledge and background and moves too fast."

> "The time allottment for the children was much too long for their attention span."

A suggestion for remedying the problem of unsuitability is given.

> "Could you possibly list a number of alternative steps or materials to meet varied situations."

The Materials

The findings often reflect problems brought about by the haste which was necessary to complete the Box in time. Among those which functioned poorly, the following seem to be the ones reported most often by the teachers:

The Shadow Box - This was the principal media of the unit. A large number of teachers pointed out many technical problems with it. It was difficult for an entire class of 25-30 to see the scenes in the Box. The Box is extremely heavy and awkward to manage. Its doors will not stay open or closed by themselves. Overhead lighting is not strong enough to simulate the effect of sunlight in casting shadows, making it nearly impossible to teach countershading effectively.

Background Panels which are inserted into the Box are heavy, difficult to insert properly, and sometimes produce glare.

Overlays which are used with the panels to change the scenes also produce glare.

Magnets used to attach the models of birds, moths, and animals to the background panels were often not strong enough.

The Slide Projector turned out to be a very poor quality design. The outer casing became dangerously hot to handle. Tabs holding the slides on the discs melted and bent outward making it necessary to turn the discs awkwardly by hand in order to change slides.

It is not at all surprising that these practical difficulties should have dampened the teachers' enthusiasm during their actual use of the Box. Some teachers were pleased, nevertheless:

> "Having the materials so readily available is the answer to a classroom teacher's need."
>
> "Very good materials and I feel the approach was excellently varied to the delight of teacher and children."

The Activities

It is sometimes difficult to evaluate the effectiveness of the activities themselves when materials that functioned poorly interfered with the presentation of a lesson. However, there were some difficulties reported with some of the lessons which could be attributed to the activities alone.

For several teachers the game in Lesson I proved difficult to organize and keep going on a level that held the interest of the class. The game requires a group of children to set up a scene in the Shadow Box while others wait at their seats to detect animals that have been 'hidden' in the scene. Class management was sometimes a problem since 4/5 of the class had nothing to do while the other 1/5 set up the scene. The groups playing the game were often so intent on outscoring each other that it is questionable how much they were able to focus on the elements of camouflage which the game was designed to emphasize.

In Lesson III nearly 1/3 of the teachers reported that procedures for presenting the lesson were not clear, that it was difficult to organize, keep going, and to end. Five other teachers felt, however, that this was the lesson from which the children seemed to learn the most. One stated: "The elements of pattern and coloring seemed very clear to them at the end of this lesson."

In Lesson IV a number of teachers felt the Yang story was too long and the vocabulary too difficult for primary grades although they did seem to like the idea of the story.

Upon considering all the data, Lessons II and V are, without a doubt, the most successful lessons in teaching specific aspects of camouflage. In Lesson II the children view slides of various animals in natural surroundings; in Lesson V they design a well-camouflaged scene in the dioramas which each receives. Nine teachers of the 21 using the Box felt Lesson II was the lesson from which the children learned the most and the one which was the most appealing to the class. Nine others felt Lesson V with the dioramas was the most appealing.

In spite of practical difficulties with some of the materials and procedural difficulties with several lessons, teachers were surprisingly positive in their appraisal of the Box as a whole. In the next section, an evaluation of the Box as an effective tool for teaching camouflage will be made. The designers feel that though the Box had a generally stimulating effect in the classroom, it must be assessed in terms of the job it set out to do, in order to justly rate its successfulness.

DISCUSSION and CONCLUSIONS

In drawing conclusions from our findings it seems important to try to discover the reasons behind the successes and failures of each lesson. In carrying out this kind of analysis we found many considerations for future study.

The "Successes"

What accounts for the success of Lesson II? This is the one lesson which seemed to involve a more passive form of activity than any of the others, i.e., looking at slides. There are several possible explanations for its success.

The high quality of the slides must be mentioned here for they did seem to be outstanding as illustrations of camouflage. More important, this was the only time in the experience where the children encountered pictures of real animals. One teacher felt Lesson II appealed, "..... because it showed actual use of camouflage." Another teacher said, "The slides had the most information they could observe and react to." Perhaps it was difficult for the children to make any transfer to the real world of nature from the models and imaginary animals in the Box. The report from one observer expresses the enthusiasm of the children and indicates the slides did help in making this transfer to reality. He said, "The lesson lasted 1 hour and 45 minutes. Children didn't want to stop discussion. The discussion ended by children checking their pets and will talk tomorrow (about them)."

We had felt the models and other materials would help make Camouflage - a relatively abstract concept - more concrete and, therefore, interesting and easily understood. It seems obvious from this appraisal that materials in themselves do not necessarily make a topic concrete. Rather than stating the abstract concept in concrete terms, the models and other materials may have only added more abstraction. The slides were of real animals and therefore were better able to make camouflage vivid to children this young.

The high success of this "passive" lesson opens up the whole question of the value of active versus passive lessons. It is often assumed that a passive experience is less valuable than an active experience; that more learning comes through active experiences. The experience with the slides in this Box has made us reconsider this assumption.

Certainly, viewing slides is a passive experience in terms of outward behavior; nothing is involved but sitting and watching the screen; yet this seemed to be the most successful lesson in the Box in terms of learning acquired and appeal to the children. What is important is that the experience actively engages the mind, and that there is a personal involvement with the media. The implications of this for designers of materials is far-reaching. To even make a beginning they must be aware of what involves a child's mind at various conceptual levels and what his interests and background of experience are likely to be.

The success of Lesson V also raises some interesting issues. In this lesson each child was given his own diorama. In the diorama he creates a scene in which something he chooses or makes is camouflaged, using what he has come to understand of the camouflage concept. One teacher liked this lesson particularly well because, "All the children could participate at once and use their own imagination." This is the only lesson other than the slides in which the children did not have to 'wait a turn' for something and were given a free hand in the activity, i.e., they were not asked to solve a ready-made problem or fit into a structured lesson. Perhaps this has helped make the problem more real to them since it came from them and was not imposed by an outside source. For some children it may have been important to know this diorama was theirs to keep. Most children seem to like to possess 'things'. Most children also like 'art work' which was involved in this lesson.

The comment of one teacher gives us an insight: "Making the diorama challenged their creativity rather than their mastery of certain facts." Certainly materials can become an end in themselves. Unless continually tested and revised with ample time in which to deal with unexpected results, a kit of materials such as this Box stands the danger of becoming nothing more than a Box of gadgetry rather than a means to more effective learning. This leads us to a consideration of the other lessons.

The "Failures"

The "gadgetry" mentioned in the preceding paragraph may be at the heart of the ineffectiveness of Lessons I, III, IV. They tend to be contrived and often bogged down in procedures and management. The "gadgetry" can capture teachers as well as children. Having materials so readily available is a true aid to busy classroom teachers. Seeing the children respond with such enthusiasm to the teaching/

learning situation increases the teachers' own enthusiasm. Because of this enthusiasm and the convenience of such a Box it may be easy to overlook the true outcomes of its use and fail to question and examine the basic concepts involved. A few observers (4) did question the suitability of the whole concept of the Box. This statement from one of the observers sums up their concern: "I feel that this MATCH Box was artificially experimental, that the materials could not approach vividly enough the real intricacies and subtleties of Camouflage. I also question whether the few concepts gained were worth two weeks of time. Did the children really expand their ideas through their handling of the materials? I think not." This seems to be a valuable and true insight into the Box and its effect. Certainly several of the activities missed the point. Many of the things that went wrong in the Box could not have been foreseen; when they did show up inevitably in try-outs, there was simply not enough time to revise, test the revisions, revise again, etc. until a satisfactory product was achieved. The evaluation period was, in effect, a continuation of the try-out period and the final product was quite far removed from the original intent of the Box. The relationship of time and quality and the bugaboos of having to meet deadlines is vividly illustrated here.

Summary

If a future edition of the Box is to be circulated, it will require a major revision. Before such a revision should be undertaken, however, one question must be answered: Is Animal Camouflage a viable topic? Is it important enough to warrant special treatment as a total class unit of work? Can children receive valuable insights into the real world of nature through the study of Animal Camouflage? Can we really make it concrete by making a MATCH Box on it?

As it exists now, this Box could be most effectively used for a small group project rather than a total-class unit. It could be best used as one small part of a much larger study of animal life in general. Because of its abstract nature and the place which camouflage occupies in the balance of nature, it seems it is a topic which would have much more meaning for older elementary children than the primary level to which this Box was directed. The older children should not have as much difficulty making transfer to reality as the younger ones did. Their broader experience with nature through other units of study and their own contacts with the out-of-doors should help put the camouflage concept in a more understandable and meaningful context. This, however, is only a supposition and would have to be tested carefully to determine if it was true.

The use of materials and real objects appears to be a superior approach to teaching; yet real objects can be misused as easily as textbooks. They can be as conventional as the more traditional approaches, doing just as little to increase or refine a child's ability to think for himself. They must be designed with utmost care, supported by the knowledge of many things: children and how and why they learn; the teaching situations in which they will be used; the practical aspects of various material and how they function; a thorough background in the topic to be explored. This requires a sharp team of developers working closely together and could never be accomplished well by one or two people in a vacuum no matter how interested or hard-working they might be.

From the standpoint of development and design, our learning from this Box might be summed up in the following points:

1. Ample time for try-outs and revisions must be available if materials are to be made truly effective.

2. A team of developers is necessary in order that all aspects of a developmental problem can be given full and accurate assessment.

3. Activities often involve children in unexpected ways. An apparently passive experience may require mental involvement which makes it, in effect, an active experience.

4. Lesson structure must be flexible enough to adapt to many types of children and teaching situations. Alternative activities can enhance this flexibility.

5. There must be a constant awareness to guard against materials and objects becoming an end in themselves rather than a means to more effective learning.

6. The basic concept must be suitable to the audience and be worthy of special time and treatment.

7. Materials and real objects stimulate enthusiasm in both children and teachers, yet they may present no more effective approach to teaching and learning than some of the more conventional

means. The quality of the design and the developmental program will determine the quality of the learning outcomes.

APPENDIX D-8
Box Report Summarized
Netsilik Eskimos

MATCH Box Project
U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

NETSILIK ESKIMOS

BY NANCY OLSON
ELLEN SHAPIRO

BOX DEVELOPED BY NANCY OLSON
ELLEN SHAPIRO

PROTOTYPE COMPLETED SEPTEMBER 1966

EVALUATED FALL 1966

SECTION I: GENERAL FINDINGS

OVERALL PURPOSES

The Netsilik Box is one of several MATCH Boxes that attempts to bring children in touch with another culture. This is no small task. The usual way teachers introduce a new culture is to give a general view that covers the whole subject. Too often this broad coverage has little that relates to what a child knows and understands. Nothing much happens when a child gets together with a series of generalities about Eskimos. But give a child a bow drill, let him drill with it and find out what an Eskimo makes with it - and the child begins to get a hold on the strange culture. In this Box we are trying to provide the kind of rich detail and depth that we think makes the new culture real and concrete for a child.

The Netsilik Eskimos seemed appropriate for a MATCH Box depth study because an anthropologist who had studied them closely was here in Cambridge, a direct source of artifacts from the Netsilik was known, and rich films of them were available. One significant difference between the Eskimo Box and other MATCH Boxes on cultures is that these ethnographic films are a central media. We set out in designing this Box to learn ways to make film watching less passive and to integrate film with other media so that each intensifies and deepens the message of the other.

CONTENT

The Box does not "cover" all Eskimos. Rather, it attempts to study in depth a specific group of Eskimos, the Netsilik, who live in Canada, north of Hudson Bay. In order to be even more specific and show the Netsilik in greater depth, the Box focuses on one part of the Netsilik year: the winter, when the Netsilik hunt seal. The Box is a reconstruction of the traditional life of the Netsilik as it was fifty years ago.

MATERIALS

Artifacts: All the artifacts were made by the Netsilik Eskimos who appear in the film. They were fashioned in the traditional way using natural materials: bone, sinew, sealskin thong, etc. Here is a partial list of the artifacts:

- complete set of seal hunting tools (harpoon and head, snow scoop, breathing hole indicator, etc.)
- fur hood
- fur boots
- bone snow knife
- bone skin scraper
- bone games
- skin and wood drum
- amulet
- whole seal skin

Films: The films were made by Educational Services, Inc., to document the traditional life of the Netsilik. In a few years the old ways and skills will be lost. These films and the Box will help preserve this knowledge. The three films in the Box show (1) the Netsilik trekking out onto the winter ice with all their belongings to set up camp; (2) the seal hunt; (3) the drum dance, and the trek away from camp to another camp.

Models: There are two models in the Box:
(1) A seal breathing hole. One of the containers serves as this model. It is a 4' high cylinder that opens up on one side to show a cross section of a breathing hole; the water, ice, and snow are shown as well as the hole the seal claws out to get air. The purpose of this model is to help children visualize the seal breathing hole so that they can better understand the technology of the hunt. (2) The winter camp at Pelly Bay. A slab of white styrofoam represents the ice and snow on the Bay; plastic seal and fish models can be hung below in the "water," and igloos, sleds, and dogs can be stuck in the top surface. The purpose of this model is to help children visualize the physical setup: ice-covered water with people above and the seals below. Also, we thought that the children would like to play with the figures, recreating the hunt and other things they were learning about the Netsilik.

Maps:
Pelly Bay area.
The Netsilik winter camp.

Photographs:
A large photo of the ringed seal, the species which the Netsilik hunt.
Small photos of the specific Netsilik family the Box focuses on.
Photos illustrating some of the cards in the "Netsilik Book".

The "Netsilik Book": The "Netsilik Book" is a box of cards which tell about things that children asked about during tryouts of the Box: husky dogs, the Eskimo language, tundra, tools, how to build an igloo, etc. Many of the cards carry colored photographs. Each topic is written on a single card and can be taken out of the Box and read by the children at their desks.

Record: There are four bands on the record: (1) the myth of Nuliajuk; (2) a fictitious story of the inner thoughts of an unsuccessful hunter; (3) drum dance chanting; (4) a sample of Eskimo language.

STRUCTURE and APPROACH

The structure of the eight lessons follows the chronology of a seal hunt. In the first lesson, the children watch the Netsilik trek out onto the ice-covered Pelly Bay where they set up camp to hunt seal. They are introduced to a specific family which appears in other lessons. Next they see a film of the Netsilik hunting seal, and examine some real bone hunting tools made by the people in the film. The children also learn about some Netsilik beliefs that help the hunter, and do some camp activities such as scraping and sewing skins. Finally, there is a drum dance which could be celebrating a successful hunt. The Box concludes with the Netsilik breaking camp and setting off to find a new hunting spot.

There is no isolated event in Netsilik life. Every part is closely interwoven with the rest. Our way of approaching the Netsilik was to choose one event that was large in the life pattern, and thus would naturally touch upon many other aspects of Netsilik life. Through the seal hunt, we could explore (1) technology, the tools of the hunt and how to use them; (2) the beliefs which the Netsilik must have to hunt seal successfully; (3) the social structure necessary for successful hunting; and (4) the use of the seal for food, clothing, shelter, and fuel.

GENERAL FINDINGS

Effect on the Teachers

Teachers were enthusiastic about teaching with the Netsilik Eskimos Box and found it a worthwhile teaching tool. This is clearly indicated by their high overall success ratings of the individual lessons, and by their comments in the Teacher's Final Appraisal forms. As one teacher said, "I have seen how much more actively involved the children become in a unit when there are things for them to see, feel, and use."

Teachers appreciated having a rich variety of materials at their fingertips - materials that they would not be able to collect themselves. "No matter how long I spent organizing such a unit I could never duplicate what a Box like this has to offer." It was also important to some that they did not have to do much research, for this saved much time and effort.

Many teachers' ideas about teaching were broadened by the unit, as shown by such comments as "I hope to use as many real things as I can when teaching a lesson", and "I definitely intend to incorporate the inquiring attitude in further study." A few teachers noted that their MATCH Box experience would have a long-range effect on their ideas.

Half of the teachers evaluating the Box perceived significant changes in their relationships with their children. Some said that they had allowed more freedom to the children, and the results of this greater informality were often positive: "I felt that most children felt a new freedom in the learning experience in that they all talked with me during a group discussion or at another time about their interests and ideas." One teacher suggested that this change to a more informal relationship with her children happened because "I was learning with them."

The Box seems to have stimulated communication among teachers and with parents. Other teachers and principals often stopped by to observe the Eskimo Box in classrooms. Many teachers mentioned that parents were aware of the unit and talked about the enthusiasm and interest carried home by their children.

Effect on the Children

Children were excited by the Box, perhaps because of the objects and activities which changed the pace of the learning experience. It is not easy to tell exactly what they learned from the experience, but there is no doubt that they were involved. They told children in other rooms about what they were studying, they talked about the Box at home, and went to libraries for books on Eskimos. One teacher said "They carried their thinking to the point that they were thinking about what these people might be doing today, right now, in terms of what they know of their nomadic life as learned entirely through the

MATCH Box." Another said, "...Their questions and comments in general have indicated they gained a new understanding of a culture completely unknown to them previous to this experience."

No test was given to get a quantitative appraisal, and we do not feel that this would be a reliable indicator. One teacher remarked that "You would be testing the children on facts and this was not the objective of the unit." Many said that a test was unnecessary as the children continually incorporated previously learned material when examining or discussing new ideas.

Some teachers had new insights about certain children, especially the quieter, less verbal ones. The variety of materials and activities give children more avenues of response than the more usual verbally oriented teaching methods. Talk was stimulated in the classroom and this increase in verbal behavior was particularly evident in quieter, retarded, or emotionally disturbed children. "I have three extremely non-verbal children who became quite loquacious" said one teacher. Another said "Children (especially one, an emotional problem, who seldom speaks) began to ask questions and volunteered to participate in the activities."

DISCUSSION of GENERAL FINDINGS

Two kinds of lessons: Each teacher who evaluated the Box rated each lesson she did in terms of its overall success. Of the possible categories, "very low", "low", "average", "high", and "very high", the greatest number of responses were in the "high" category, indicating that the Box generally works well. Each lesson, of course, was rated as "average" by some teachers and "very high" by others. However, only three lessons received "low" ratings by a few teachers, and this merits some discussion. Lesson V - Seal Beliefs, Lesson VII - Nuliajuk and Lesson VIII - Drum Dance deal with more abstract content than the others: beliefs, thoughts, myths, and feelings. These lessons are about another culture's way of looking at life, a very difficult thing to get across. Though the activities in these lessons are supported by artifacts and other materials, the main understandings can not be gleaned from using them. We feel, too, that the lessons are not as well designed as the others and have particular problems. Aside from these qualities, there is some question as to how well children can grasp ideas, beliefs, and emotions different from their own.

In contrast to the above three lessons is Lesson VI, Camp Activities. Here everyone is active, using Eskimo tools and learning how the Netsilik make what they need. There are a lot of materials and appropriate activities to do with each one. The children are dealing with the "things" of Netsilik life rather than the concepts. Most teachers felt the success of this lesson was "high" or "very high". Many liked it the best and found that it appealed to the children the most.

The distinction between these two kinds of lessons is important to consider in designing new units for the third and fourth grade level.

Depth-study with real artifacts as a way into a culture: The important questions are, did this emphasis on depth and concrete experiences with real artifacts work? Did it put the children in touch with the Netsilik? And further, is this a good method for learning about another culture? It is impossible to give any quantitative appraisal of these questions. We simply do not have that kind of data. But there are general indicators in the data through which we can get a sense of whether the depth method worked. One indication is the degree of involvement the children show as they go through the Box. This, teachers say, was very high. Another measure is performance - how well the children try to do the activities. The data indicates high performance. Many children, for instance, mastered the steps in the seal hunt with nice precision, and drew the tools with especially good detail. A further indication that the Netsilik meant something to the children was that they talked so much about the Box to other children and to their parents. So from this kind of data we can at least presume that the children cared about the Netsilik, felt some kind of empathy toward a strange culture.

The problem of misconceptions: Though this slice-of-life Box with its real harpoons and bow drills did put children in touch with another culture, its in-depth treatment of one aspect of the culture may have left misconceptions about the whole culture with the children. While the children may have a gutsy feel for the fact that the Netsilik's very survival depended on catching a seal, they may think the Netsilik eat seal all year round. From seeing the Netsilik living in igloos during the seal hunt, the children's stereotype of the Eskimo living in igloos may have been strengthened.

We also might have introduced misconceptions by doing a reconstruction of the Netsilik's traditional way of life, which began to change about fifty years ago. Today his life is very different: instead of hunting seals at the breathing holes with a caribou bone harpoon, he hunts them with a rifle in the open water. Sugar, flour and other staples from the government have changed his traditional diet of seal meat. The Catholic Church has Christianized him. And the Canadian government has built a school.

The major reason for our deciding to do a reconstruction rather than a present day study, was that a wealth of films of the traditional Netsilik were available, and artifacts were accessible. We wished to design a Box with heavy emphasis on film and were especially intrigued by the thought of using authentic artifacts. By committing ourselves to the films and artifacts so early in the development phase we were also committing ourselves to doing a reconstruction. This irreversible decision ham-strung us somewhat because we were not free to alter the major content of the Box.

One of the problems of doing a reconstruction of a culture is making this fact clear to the children. The Teacher's Guide tells the teacher that the Box is a reconstruction, so she is clued in. The "Netsilik Book" mentions that Netsilik life today is different; but in spite of these "corrections" we fear that the children probably are left with the idea that the Netsilik are still hunting at the breathing holes by the traditional method. All they see, do, and feel will carry a stronger, more lasting message than the small notes that say things are different now.

The fact that the Box is a reconstruction should have been stressed more to the children, even though it may be a confusing point for them. Reasons for studying something that is past should be made more clear. The present day way of life should be explained in enough detail so that the children are left with a solid idea that vast changes have occurred.

The possibility of strengthening existing misconceptions, or substituting them with other misconceptions, must plague all curriculum developers. Even though the in-depth treatment undoubtedly will foster some misconceptions, the generalized treatment probably fosters more.

The use of film: The Netsilik Box involves children actively in film watching. One method is to make the film resolve a problem the children have been working on. In Lesson I, the children are given four Netsilik-made artifacts: a fur hood, seal skin boots, a snow knife, and a snow probe. Groups of 6-10 examine each of these artifacts, trying to figure out what they are, what they are used for, who might have made them, and what the environment and living was like where these artifacts originated. The children usually figure out, for example, that the bone snow knife is a knife because it is shaped like one; they say things like "They must not have stores there", and "They use wild animals", etc. Few of them have ever guessed the actual use of the snow knife - to cut blocks of snow to build an igloo. These "mystery objects" are tantalizing, and the children do some good thinking about them. When the children have finished "reading" these objects, and have put together their tentative findings about them, they watch a film in which all four mystery objects appear and through which the children can check their own findings on them. The film seems to be more real, more enticing, because just a moment ago they held the same kind of snow knife in their hands. And the snow knife, on the other hand, becomes more significant after they have seen the Netsilik using it in the film. So there is feed back between the two media, each strengthening the other. An added advantage of using the film this way is that they go to it with anticipation, with attention, looking for information.

A different use of film occurs in Lessons III and IV, the Seal Hunt. Here the children learn the details of how the Netsilik hunt seal at the breathing hole from the film, and later re-enact the hunt themselves. They can see the film as often as they wish to learn the steps of the hunt. Here again, the children go to the film wanting to figure out a kind of puzzle,and they go to it with an experience which should help them grasp the message of film better. In Lesson VIII, the Drum Dance, the children are encouraged to chant and "dance" along with the Netsilik as the film is being shown.

The point here is that film should not be just dropped into a Box because it happens to be on the same topic. It should not be just added to make a multi-media Box have more media. Rather the function of the film should be scrutinized. Its potential for mixing with other media should be analyzed. Its way of melding in as an integral part of an activity should be designed. With this kind of scrutiny there is a greater chance that the child watching the film will bring something to the film - an experience with a snow knife, or a puzzle to be solved - and that the child will be richer from his involvement with the film.

Child-centered resource book: The "Netsilik Book" is a Box containing removable cards, each of which tells about some part of Netsilik life: husky dogs, making sleds, summer, animals, etc. The major purpose of the Book is to provide a way for the children to learn more about the Netsilik if they wish to. The form of the "Netsilik Book" is important. The child takes only the card he wants to his seat to read. The rest are left in the Box for his classmates to take out. This means that usually a child can follow up on a topic the moment he becomes curious. He doesn't have to wait - and have his curiosity flatten - because "somebody else has the book out."

The Netsilik Book takes the burden off the teacher for being the sole source of information. She is now in the position of learning along with the children; she can encourage the children to find out for themselves. The Book serves as a good way to encourage the learning power of the children who want to dig deeper, without forcing the rest of the class to do so too. In other words, it individualizes the learning situation. The data suggests that teachers like having this tailored resource material for the children to read, and that the children read the cards often. One teacher commented: "The children would scramble to get the cards from the Netsilik Book."

RECOMMENDED CHANGES

We do not feel that the Box needs any basic modifications. There are two changes, however, which would improve it. The first involves timing. This great variety of new materials, new activities, and new ideas should hit the class more slowly. Adding one or two weeks to the normal two-week period that the teacher has the Box in her classroom would give a more thorough experience. Some lessons are too full, allowing little time for the child, or even the teacher, to digest them. With more time, the teacher could make more decisions about when things should be presented, for how long, etc.

The second change is to add more poetry, stories, myths and music. This would help the children towards a deeper emotional understanding of this foreign culture. These could just be made available, with the hope that the teacher would incorporate them, or they could be put into the lessons very early in the unit. These should help the child to the kind of understanding we were aiming at in the lessons on myth, beliefs, or the Netsilik's view of life.

APPENDIX D-9
Box Report Summarized
Musical Shapes and Sounds

the children's museum

MATCH Box Project
U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

MUSICAL SHAPES AND SOUNDS

BY JUDY GREENE

BOX DEVELOPED BY TOBY LEVINE
PAUL FISHMAN
JUDY GREENE

PROTOTYPE COMPLETED SEPTEMBER 1966

EVALUATED FALL 1966

SECTION I: GENERAL FINDINGS

The MATCH Box Musical Shapes and Sounds was designed to give children the chance to study instruments first-hand, to begin thinking about their sizes and shapes, the variety of sounds they make, and how these are related. We hope to lead children to ask questions, and to stimulate an interest in the subject, which will grow and develop.

The choice of music as a topic for a MATCH Box for third and fourth graders has appeared to be quite appropriate, judging from the teachers' answers in the evaluation forms, and the children's responses in the classroom. We have had numerous comments from these teachers that their students are signing up for the music lessons which are offered from the fourth grade up. Many teachers also mentioned that they have been able to relate this music-and-sound unit to their science program, and that they have carried on this work after the Box left their classroom.

The choice of two weeks for the length of the Box's visit in the classroom was considered satisfactory by only 13% of the teachers who filled in the final report form. A three-week use, which was initiated in later tryouts, seemed to receive much more positive response. I feel the three-week session is a much better time-span, as it gives the teacher more leeway in planning the use of her time, and gives the children the possibility of a longer exposure to the Box.

Although the subject and media have appealed to a large number of teachers, nevertheless, many found that it requires much preparation time, more than they could afford, considering their other commitments. This is contrary to the original intention of the MATCH Box series. On this point, teachers have indicated, through their comments on the evaluation forms, that this extra-heavy preparation time could have been cut down had there been more complete information about the materials in the Box and how they should be used. Considering these difficulties, it is interesting to note that 70% of the teachers felt the experience was worth the time and effort involved, and 84% would choose to use the Box again.

Considering the original criteria for the Boxes, the materials in the Music Box worked out fairly successfully, in that they are varied, rich, and otherwise not available to teachers. Certain questions have arisen about some of the media; these are treated in Section III, Recommended Changes.

The activities of the Box were planned in such a way as to offer different kinds of experiences: permitting children to work as a class, in small and large groups, and individually, on lessons involving very direct encounter with the materials, as well as in discussions about their discoveries.

Teachers have experimented with group work in ways which, many reported, were new to them. At times, working in an unfamiliar way with materials they had only just met, and at a high pitch of noise and excitement (Parts I, "Getting Acquainted," and IV, "Toot Your Own Horn"), teachers encountered real difficulties. Many mentioned that the Guide could have alerted them to these problems.

The data indicates that teachers often found it difficult to know what and how the children were learning, particularly in Parts I and IV. They wanted more suggestions of how to ask questions in class discussion. Some wanted tests to see if the students were grasping the principles being stressed. Proposed changes in the Guide, to meet this need, appear later in this paper.

The intensity and consistency of the children's response to the Box confirms that the subject matter, and to some extent, this Box in particular, have something very powerful to offer them. Now it is important to refine some of the very rough spots which the evaluation period revealed.

APPENDIX D-10
Box Report Summarized
Rocks

MATCH Box Project

U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

ROCKS

BY MARION B. CAREY

BOX DEVELOPED BY GENEVIEVE R. KEATING
MARION B. CAREY
RONALD J. KLEY

PROTOTYPE COMPLETED SEPTEMBER 1966

EVALUATED FALL 1966

SECTION I: GENERAL FINDINGS

Overview of Box

Rocks is a prototype kit of rock specimens, demonstration materials, and activities for fifth and sixth grade classes to use over a two-week period. The aim of the Box is not to make geologists of the students. Rather, it should lead them to realize that the rocks we see were not always the same as they are today, and that the rock itself contains clues to the changes it has undergone. Simultaneously the children should find out that science is not just a collection of facts to be learned or merely a method of investigation, but rather a process of discovery and a life long adventure which remains forever, necessarily, unfinished.

Confucious maintained that "one picture is worth a thousand words." One might well pursue this logic a bit further and conclude that a combination of words and pictures, bolstered by illustrative "real" materials, and presented in the context of interesting and stimulating activities, is of still more transcendent value. It is upon this basic premise that this unit and its "multi-media" approach is based. The materials and topics in this unit were selected because they represent very basic geological concepts; but more importantly because they do a good job of illustrating methods of seeking and obtaining knowledge about a piece of rock, a grey squirrel, or a way of life in ancient Mesopotamia.

Aims and Approach

The Rocks Box is divided into 5 phases which are color coded to facilitate distribution of materials. The materials are packaged in heavy duty trays approximately 12" x 24" x 5" with snap on clear plastic leds. The Blue, Red, and Purple phases are each contained in a separate tray, while the Green and Yellow phases share a tray. Two covered trays rest in a wooden carrier with aluminum handles. The Box is thus a compact package and easily carried.

In each of the first four phases the children examine a chapter in the story of rocks. The last phase is a sleuthing exercise in which the class applies what it has learned to five mystery rocks. Each phase is made up of several activities which have been designed to help children visualize what happens to these rocks in nature by using the discovery method of investigation.

To allow children to experiment with and come to their own conclusions about rocks is a basic aim of the Box. The activities for the children are actually ways to simulate the natural process the rock undergoes in nature. They are models or lab demonstrations of the geological happenings that make these rocks the way they are. We are concerned in this Box with the rock components a child can see, touch and recognize.

Outline of Rocks Box by Phases

Blue Phase - Sedimentary Rock: Children examine 5 rocks - conglomerate, sandstone, limestone, coquina and shale, each made up of a different kind of sediment.

Activities:

Synthesize Rocks
Children carefully examine a rock specimen to figure out what it's made of. From packages of different types of sediments, they then select those which make up the rock specimen, and mix the sediments in a paper cup.

Breaking Down Rocks

1. Children break a piece of rock with a hammer, shake some fragments in a container, file some other fragments, to make sediment.
2. A small piece of coquina is dissolved in some vinegar and the residue is examined.

Sediment Tank
Children sprinkle sand, pebbles, shells, mud, etc., into water to see how layers of rock form.

Red Phase - Igneous Rock: Igneous rocks are formed directly from molten magma or melted rock. The children work with 5 types of igneous rock - pumice, lava, granite, basalt and obsidian. The activities show how the textures of these rocks depend on the speed of cooling and where cooling occurs.

Activities:

Frozen Rocks
The class watches a 16mm sound film that shows rock actually in the process of forming. This is igneous rock cooling and hardening from molten magma which has forced its way to the surface of the earth.

Crystal Former
Children experiment with a plastic slide that forms solid crystals from a melted substance, by heating the slide with a small night light and cooling it in the air or in water.

Magma Map
Children take turns looking at a transparent cross-section diagram showing where various igneous rocks are formed, and that different textures of rock form from the same magma, depending on the temperature in the place where it cools.

Classroom Volcano - Demonstration by teacher
A small pile of chemical is burned, building up a "mountain" of ash, the same way ash from a volcanic eruption builds a mountain of falling pumice.

Purple Phase - Metamorphic Rock: This phase of the Box deals with rocks that have been changed or "metamorphosed" from either igneous or sedimentary rock, by heat and pressure, to the point where the original form is no longer recognizable. This phase also deals with some of the forces that metamorphose rock, or that change it to a lesser degree. The rocks studied here are quartzite, gneiss, slate and folded shale.

Activities:

Birth and Death of Mountains
Class watches a 16mm color film on "Birth and Death of Mountains" to see forces that change rocks by building mountains and by wearing them down.

Rocks Before and After

1. Children match and compare the metamorphic rock specimens with some rocks already studied.
2. Children press and squeeze sets of clay pellets to simulate heat and pressure changing rocks to a metamorphic form.

Folding

Groups take turns squeezing a foam rubber model to visualize shale or layered rock being folded by pressure within the earth.

Earthquake

Children bend and break simulated layered rock which they made as one of the sedimentary phase activities.

Green Phase - Fossils: What fossils are and the 3 major ways they form in rock: impression, molds or cask, and petrifaction. Specimens used are a reproduction of dinosaur foot print, a fern fossil (cast), a gastropod (mold) and a piece of petrified wood.

Activities:

Making Fossil Footprints

The children walk a plastic dinosaur across a wet plaster surface, leaving footprints that will be preserved as the plaster hardens.

Molds and Cask

Children make imprints in plasticene, and fill in the spaces with plaster, to see how this type of fossil formed after the decay of the animal.

Petrifaction

Groups of children take turns examining a transparent diagram showing how the contents of each cell are replace by rock-forming solutions, resulting in a plant, shell, or bone that has actually turned to stone.

Yellow Phase - Mystery Rocks: The children examine and try to reconstruct the story of each of 5 mystery specimens:

- A sample of sand grains
- Banded South Dakota sandstone
- Granite cobble
- Silicified limestone
- Geode, which must be cracked open

General Findings

The Box is designed for a class divided into four groups with each group working with identical sets of materials. The most interesting data concerns this arrangement. The average class in the evaluation of the Rocks Box numbered thirty-two children. Only four teachers were able to manage four groups of eight satisfactorily. ALL the other teachers wanted double the amount of materials or at least six groups. The ideal group for the kinds of activities in this Box is four children but the materials and activities are manageable for a group of six. Group teaching was a new experience for half of the teachers. Some teachers who had not previously worked with groups found this kind of teaching exhausting and complained that each group had to be instructed individually - which really meant teaching everything 4 times. Others were delighted with the achievement of normally slow and reticent children working in small groups. There are several comments in the data on non-verbal children becoming enthusiastic in their eagerness to ask questions and offer conclusions. The children's relationships with each other changed while working in groups. They seemed to appreciate rather than merely accept each other's contributions. One of the most positive contributions of the Rocks Box seems to be the value of group work for slow and timid children as well as the significance of manipulative materials in the classroom.

Relationship to Curriculum: Earth Science seems to be basic in most elementary school curricula for grades five and six. Although the subject matter appealed to 80%, more fifth grade teachers than sixth were enthusiastic about the Rocks Box. The latter sometimes felt that their classes had been introduced to rocks earlier and the material was repetitive. Several teachers suggested that the reading level of the instruction cards was too advanced for slow fifth graders yet most of these had classes with a language barrier (either Mexican or Puerto Rican). 21% found the material poorly suited to the curriculum. Some teachers who avoid teaching science were pleased to have a unit come that "so neatly solves my 'What to teach for science?' problem so efficiently."

Time Allotment: Only 26% of the teachers involved in the evaluation considered two weeks an adequate time for use of the Box in the classroom. 64% of the teachers would like the guide at least a week before using the Box and nearly all prefer a three week session with the Rocks. Twelve teachers noted that only one hour per week is allotted to science in the elementary curriculum yet all but one of these also agreed that a concentrated two or three week study of a unit like Rocks is educationally more sound because the children's interest remains high and their retention of material seems better.

Media: The pro and con responses are fairly equally divided among the data returns on the media in the Box. The teachers voted 100% for the two films and the classroom volcano. Of nineteen returns, fifteen teachers want more explanations and directions for using the materials, especially directions in the sedimentary phase. In evaluating the data on the materials it must be reported that experiments and activities with messy materials are against the general order of the traditional classroom. The noise of hammering and rock shaking is usually taboo. It is interesting to read how many teachers remarked that the children were learning while being noisy. Although the media caused some difficulty either in preparation, use or clean up, most teachers readily admit the value of having all this stuff at hand and that it would be impossible for them to gather all the materials for a classroom presentation. The media is real and authentic, it implies better learning and more efficient teaching and does not demand a lot of verbal accompaniment. Thus it would seem that the media satisfies the original criteria for the Boxes, although some improvements are necessary.

The Guide: The Guide as it stands now is relatively unstructured which is fine for most teachers when the class is using the materials. When the children aren't in the midst of an activity, or directly following instructions, the teacher is insecure and craves more structure. She wants to know what concepts should be getting across and how to go about it. She wants the objectives and the hoped for conclusions stated at the beginning of each phase along with specific idea questions and answers. Five teachers (25%) thought it was fun to learn with the class but the rest preferred to know in advance exactly what their classes might discover.

Containers: The four containers which constitute the exterior package work superbly. They handle and carry well. The covers are apt to crack with rough usage but they are easily and cheaply replaced. The arrangement within each unit is random but the colorful specimen bags lessen the confusion and separate the materials into the necessary four groups. I do not feel that compartmentalizing or organizing the interiors would improve the function of the individual sections or of the Box as a whole.

Loanability: Repacking the Box is a necessary chore because the Box contains so many expendable parts. Perhaps a teacher dispensed materials center as mentioned in a later section of this report might assist here. Certainly a full hour is necessary to refurbish the Box after each use.

Approach: The data shows that while this method of concentration on a subject, which is taught by investigation and discovery is not the approach used by the average teacher in the average school, it does get results. 90% of the teachers using this Box felt the children had learned about rocks and that the results were well worth the time and effort spent. 85% of them noticed more interest and involvement in their classes. 17 of the participating teachers would like to use the Box again.

Commercial Possibilities: Since the materials in the Rocks Box are both obtainable and attainable and the impact on the teachers who have used the Box has been favorable, I would say that the commercial possibilities of this kit are better than average.

APPENDIX D-
Box Report Summarized
Medieval People

the children's museum

MATCH Box Project
U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

MEDIEVAL PEOPLE

BY SHARON WILLIAMSON

BOX DEVELOPED BY SHARON WILLIAMSON
RUTH GREEN

PROTOTYPE COMPLETED SEPTEMBER 1966

EVALUATED FALL 1966

SECTION I: GENERAL FINDINGS

OVERVIEW of BOX

The Medieval People MATCH Box was conceived and created primarily to bring an era of history to life for school children. The challenge was to find some way to make a period so remote real for the children so that they would experience and understand it, rather than merely memorize facts and concepts about it.

We knew from the start that our focus would have to be people. The decision to use role playing as the major activity of the Box, followed soon after. We set about to design materials and a strategy which would enable fifth and sixth grade classes and their teachers to develop the understanding and practice necessary to assume the roles of medieval people. We chose to focus upon certain members of a hypothetical medieval community, the French manor of St. Aliquis, and to present them and their manor as vividly as possible to the children. The thought was that in addition to coming to know this specific community well, the children would learn concepts and facts generally true of this era in history.

The lessons are arranged so that the children gradually learn about the people and grow in their ability to portray them. The way in which we wanted the children to learn resembles one which we follow as we get to know someone for the first time. At first, we see only the superficial things: what the person looks like, how he dresses, how he holds his coffee cup, and how he acts in ordinary situations. The first meeting may not reveal what his job or hobbies are, but in time these things also emerge. Perhaps then we will see him in a variety of unusual situations and be able to learn much about him by watching his reactions. Eventually we might even be able to perceive his values and attitudes.

As the children observe and play the roles in scenes of increasing complexity, they come to know these specific people of the manor: Baron William, Lady Elinor, the Bailiff Louis, Priest Gregoire, Minstrel Martin and three members of the peasant family of Jacques the Humble. The students learn to work in groups, to discuss something critically, and they are meant to have fun while they learn. This Box is as much for the edification of the teacher as it is for the children. We hope she will have an experience in using this Box which adds significantly to her understanding of the teaching and learning process.

Thus, the Medieval People MATCH Box intends to make medieval history - especially the human aspect - relevant and real. We also want to make the study of history something that both the children and teachers want to undertake, with a truly shared sense of purpose. For us, the Box was an experiment in the use of role playing as an approach to learning history and an adventure in the design of an integrated pool of materials.

MATERIALS

The Box contains materials which are designed to work together to facilitate the dramatic encounter between children of today and the members of a thirteenth century community.

Filmstrip: It contains closeups of medieval castles, churches, and farm land. Accompanying the filmstrip is a recording of minstrel Martin's impressions as he travels to and approaches the manor. Objects are shown in the filmstrip which the children will later handle, and names of people are mentioned whose roles the children will be playing. The overall purpose is to establish the unit with a taste of the medieval atmosphere, and to set the scene for the skits and play to come.

Record: It contains a number of selections, to be used throughout the unit.

1. The minstrel Martin's spoken impressions upon arriving at St. Aliquis. It accompanies the filmstrip.

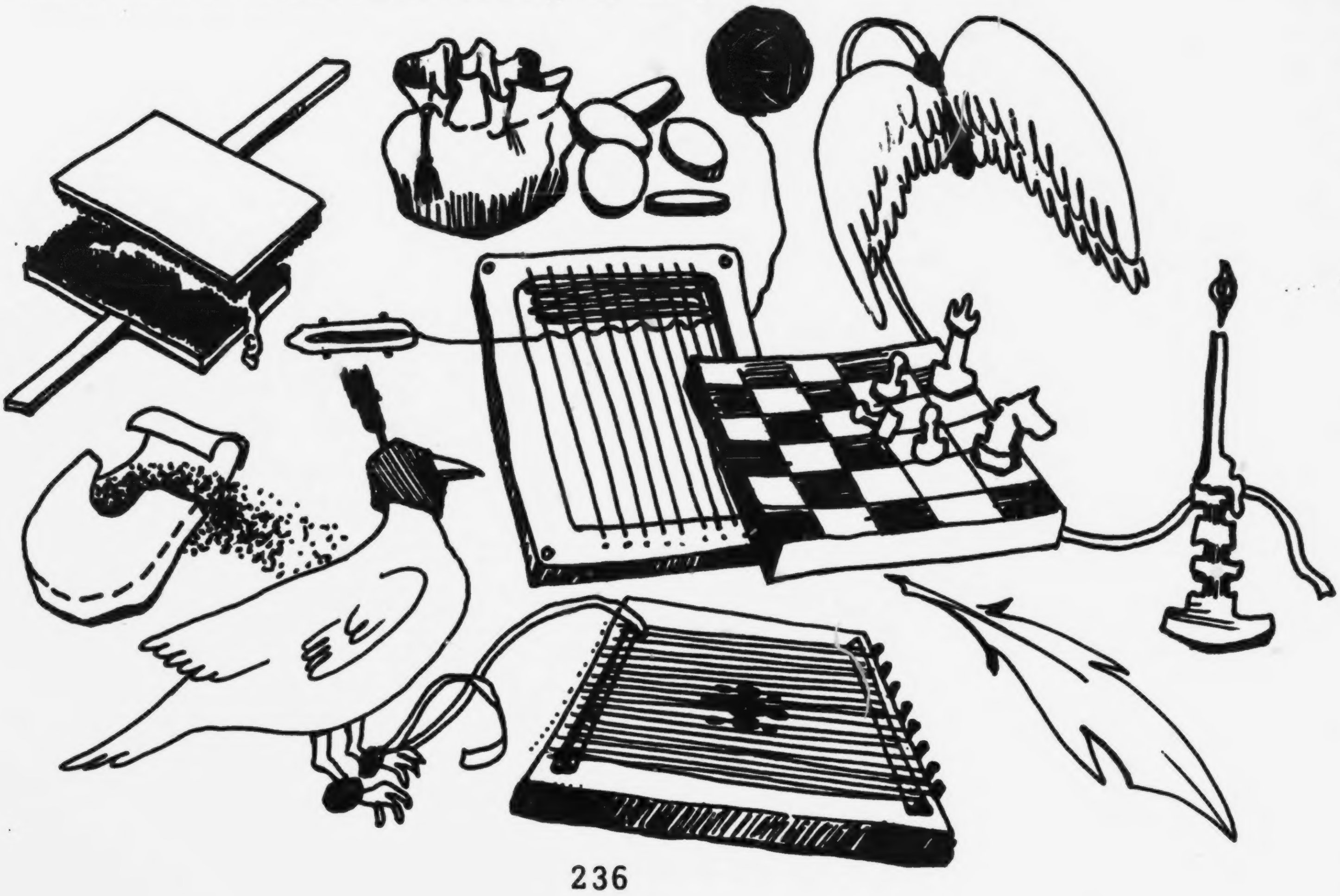
2. The first two acts of a play involving the eight characters. This is used to establish a problem situation to be solved by the villagers.

3. A monologue by a peasant woman describing her adventures in court. This monologue provides information about the procedures of a medieval court.

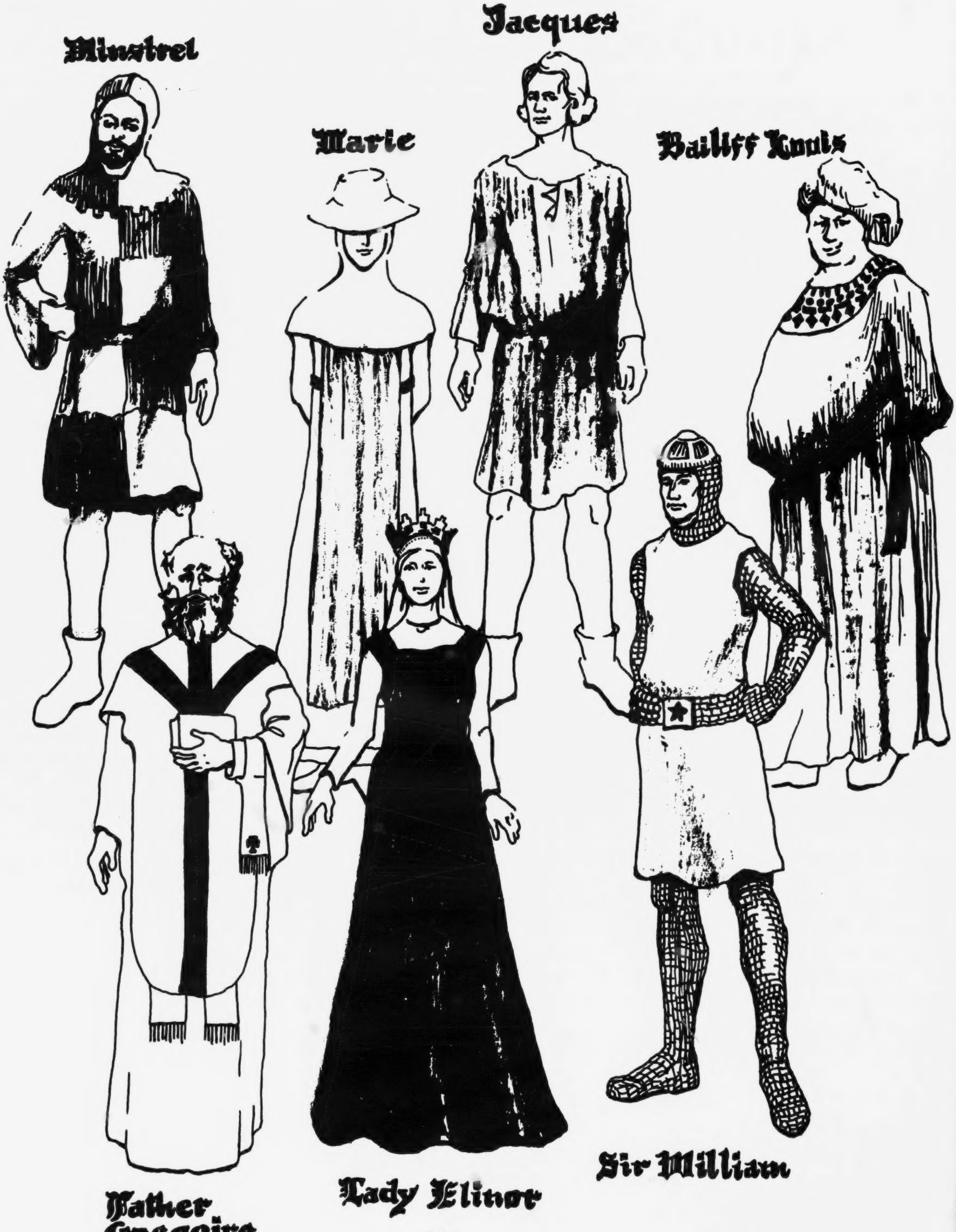
4. A story about a medieval crusader, just for listening fun.

In addition to the sheer factual material on the record we hope the children will develop a greater understanding of the characters from their tone of voice, their reactions to each other, and their varying interpretations of events.

Objects and Costumes: These are either models or modern versions of the real items. They serve a dual purpose: They tell something about the characters who would use them, and something about medieval village life in general; and they are also used as props in the play. The costumes also serve the purpose of informing the children about the characters: the feel and cut of a garment tells much about the wearer - especially if it is emblematic of their role and station in life. The peasant dress, for instance, is skimpy and simple and made of a coarse material. This "information" when combined with the other kinds we have mentioned were designed to help the student create a characterization of a person. Of course, the costumes are also used in the dramatic activity. Here they help the audience and the players to keep their roles straight and also help to enhance the reality of the play.



Costumes:


Minstrel
Jacques
Marie
Bailiff Louis
Father Gregoire
Lady Elinor
Sir William

Character Books: These pamphlets were written especially for the Box, one for each of the eight characters. They include pictures from thirteenth century manuscripts to show the people in a variety of typical situations: at work, at war, and at play. Each character's work and belongings (objects) are described. A character sketch is provided as well as a personal account of the character's reactions to the episodes on the record. Common to all the booklets is a section on the manor court.

Books: The books are included to provide background on aspects of the period not covered by the Box.

> Life on a Medieval Barony by William S. Davis: a detailed account of life on the manor of St. Aliquis.
>
> Medieval Village by M.E. Reeves: drawings and descriptions of a village very much like St. Aliquis.
>
> Age of Faith by Anne Freemantle: a picture book giving a broad and colorful view of the early medieval times in Europe.

Package: All these materials are contained in two matching airline suitcases. The costumes are hung in a garment bag, and the rest of the materials are packed into a regular suitcase, which has partitions built into it to hold things in place.

The APPROACH and the LESSONS

There are eight lessons in all. In the first few days, the class focuses upon learning about the village and the people from the filmstrip, objects, and character books. Groups of children present crude skits in which they dramatically "tell" each other about a certain person or persons.

In the next two lessons, the students listen to a play showing the characters reacting in two exciting and more complicated events: a hunt and a poaching crime. After listening to these episodes, they act out their own interpretations using costumes and props.

In the final days, the students meet a new character, Agnes the Scold, and learn about court proceedings. They divide into groups to plan a final act to follow the episodes they have already dramatized, where the fate of a peasant is decided by the court. The plot can be of their own creation; but we suggest they build upon the play as presented on the record so that there will be more continuity in their experience. The final production is then presented, after several days of preparation in which every bit of media is meant to be used. The children are encouraged to create additional props, scenery and costumes.

In each phase of the experience the children learn something new and have chances to role play. Thus they build up a pool of knowledge and develop skills which they then can use in their final play.

SUMMARY of SIGNIFICANT FINDINGS

General Issues

Most teachers expressed great enthusiasm for and satisfaction with certain aspects of their experiences in using the Medieval People MATCH Box. They were particularly impressed with the value of roleplaying as an approach to learning. Teachers were less positive about what the children had actually learned about the middle ages, but all agreed that the things the children had learned, such as how to work together in groups, were valuable.

Role playing came easily to most of the children. Most of them, especially the shyer and "slower" ones, eagerly accepted the opportunities to act out the characters. The children came alive. Their ability to express themselves, their capacity for cooperative effort and group work, and their grasp of the social structure of the village grew as the unit progressed. Teachers found the role playing to be a great evaluation technique: very few expressed the desire for any special test to know what their children were learning. Teachers felt that role playing provided them with glimpses into the personalities and a grasp of the abilities of their individual students.

There are a few ways in which this Box did not fulfill the expectations of the designers in the evaluation. First of all, the children did not develop a deep insight into the personalities of the villagers, nor did they learn much about the artifacts used by these people. Thirdly, it is doubtful that the children were brought any closer to believing that these people really did exist. It is difficult without further research to substantiate this, but in Section C, I shall discuss some hypotheses concerning this issue.

Activities and Media

Sequence: The sequence of lessons was designed to first introduce the children to the setting, then to have them examine the daily lives of the people, and finally to have them act out specific roles in dramatic episodes. This order, with its 'fanfare' in the beginning might be logical and good on paper, but it did not seem to capture the children's interest or to focus attention upon the people themselves quickly and firmly enough. The filmstrip, which is shown first, contains no people; it might be more usefully shown later, when the children are preparing their play and need to establish a setting.

Lesson Strategy: In several of the lessons, children were asked to accomplish the complicated task of planning and presenting skits, while working in groups of four or five. The students themselves were expected to act as directors. Some classes had difficulty working on their own in this way. Though the children may have learned from the group experience, the objectives of the lessons were not achieved. The success of the skits depended too much upon the success of the directors and upon how well each group could organize itself to function effectively. All too often they didn't succeed, so that the skits also failed to achieve their purpose.

In some cases the media were not being used to full advantage because the lessons did not arrange the right kind of encounter between the children and the material. For example, the character books might have been used more productively if more detailed procedures for using them had been written into the lessons. When we were at the stage of developing activities we concentrated upon making role playing enjoyable and feasible in the classroom, and somewhat neglected the problem of arranging productive encounters with the materials.

Media: Children found the objects, costumes, and parts of the record really interesting and fun. They did not learn, it appears, many facts from or about the objects. The filmstrip and the character books were less enthusiastically received than the costumes and objects. Both are interesting in their own right, but do not clearly suit the objectives of the Box, in their present state.

Practical Issues: This is a Box especially well designed for circulation. It is light-weight, easily stored, does not contain many expendable objects, and holds up well in use. A quick assessment of its contents shows that it is probably reproducible in multiple copies.

The data shows that the Box needs to be loaned for more than the two weeks if the teachers are to have a truly satisfying experience.

DISCUSSION of GENERAL FINDINGS

The Approach: Drama as a Learning Medium

Having discovered that children and teachers, in fact the whole classroom event, are changed significantly by the introduction of role playing, it is necessary to explore this dramatic activity further as a learning medium. What purposes did it serve, what can it serve? In its present state, does the Medieval People MATCH Box represent the most effective way of using drama to teach children about a remote people? If so, why are we disappointed by the results? And if not, how would one revise the activities, and/or the media to provide an effective encounter between children and historical people?

We used roleplaying in this Box to teach social as well as personal roles of people in a hypothetical medieval community. Was this too contrived? Were the children able to invest this fiction with a vitality and reality? It is true that children do not understand and therefore cannot identify with some qualities of human beings. Did we fail to select those qualities and behaviors, which they could feel to be true? Were we asking them to put themselves into the shoes of other people in a fuller way than they were able?

In designing this Box, we did not know our clientele very well it seems. We wanted children to perceive and understand these people well. We supposed that a knowledge of the social, economic and physical aspects of certain medieval people would help to explain their personality and behavior. Thus we began the unit by informing the children about these explicit characteristics. We tried to bring medieval people as people into the children's awareness: we showed how the characters reacted to each other in dramatic situations. We assumed that the children would put all this "information" together, and perceive enough to do accurate interpretations of the characters, in their own skit-plays. The children however, did not see this kind of understanding as the end goal. Therefore, they probably did not feel the need for this depth of understanding in order to role play with satisfaction.

The teachers - who might have been able to lead the children towards this goal through the proper use of media and roleplaying - were also not cognizant of this goal. This is because we were not confident enough of the capacity of the Box to, in fact, accomplish this goal, and therefore, not clear in our statement of the objectives and procedure.

The recorded episodes which we wrote for the Box form a kind of suspenseful "whodunnit", which appealed to the children's imagination in some ways. These scenes did not, however, ask the children to grow in their empathy and portrayals of the characters. They also did not demand that the children know as much as we hoped about the social roles and artifacts belonging to these people. The children needed only to know how to handle the artifacts, and when it was appropriate to use them. This is something, but it barely touched the surface of what the objects, and the costumes for that matter, could say about the people. More lesson time and a more carefully worked out lesson structure are needed for these secrets to be unlocked.

The Limits of Roleplaying as a Medium

Though only a few teachers complained that their children were spending too much of their time acting out, performing, and role playing, I feel that this is a significant finding. Could it be that during some of this activity, the acting out became an obstruction rather than an avenue to a greater understanding and knowledge of the people? Just as the children became confused by the mechanics of group work, and lost their focus on the major task, they seemed to become very involved with the mechanics of putting on their skits, and lost sight of the whole reason why they were doing them. When mentioning problems with lessons teachers invariably spoke of these mechanical details, and rarely of the failure of the children to portray the characters accurately and with perception. Roleplaying will not eclipse these more desirable and difficult goals if the aims are well understood, and the activities are designed to really make use of role playing to produce a valuable learning experience.

Activities and Media Reflect Conflict of 2 Approaches

We were cautious, in designing lessons, and did not make our assumptions fully known. Though the underlying intention of the Box was to teach about people through drama, the first activities are more like lectures about medieval life. The fact that we had the minstrel reveal himself in his monologue in the first lesson shows that we were aware of the need to focus immediately on the people as individuals, with hopes, dreams, and feelings; but we did not really carry out this intention fully; for example, the filmstrip was full of scenes, but no people. The only thing we really ask the children to do in the next few days is to find out about daily lives, and to inform the other children about them through little skits. Again, we were reluctant to dramatically introduce the people. The strategies straddle two modes of learning thoughout the Box: straightforward exposition and dramatic roleplaying. We do not really help the children to integrate what they learn into a whole picture of the characters as human beings.

Of the media, the character books are a good example of how we straddled, but did not integrate, two approaches to teaching facts about the people. Sections I and II talk about the character from the outside, and the third section shows how he or she is reacting to the dramatic episodes, in monologues or in confidences shared with characters. And in a way we did the same thing in the play; here we were concerned with the social roles of the people, primarily as they became embroiled in a crime. There is a life and death vitality potential in the episodes; but it is never really capitalized on. The final production which the children do is a court scene, a public event where private individual feelings are not central to the event. It is clear that with the media, and the activities, we presently do not make the most of either the sociological method of learning or of the dramatic way of learning.

The time limit imposed on the classes, that of two weeks, further decreases the effectiveness of the Box. There is not enough time for the children to absorb the information and furthermore not enough time for the teacher to really stop and assess the children's progress regarding the goals of the Box. The teacher clearly felt the pressure of the final production, and not fully grasping the implicit purposes of the Box, allowed herself to be pressured by the necessity of producing a smooth performance. More time is definitely needed for the final experience of putting on their own play to be really fruitful.

Conclusion

In spite of these faults the Box certainly added something very important to the exploration of roleplaying as a medium for teaching children about medieval life, or another culture. It does need revision, however. In order to give this Box real elegance in the classroom, we must look harder at what its contents can give the children, and then design strategies which will provide an encounter based upon firmer, and more modest expectations.

This Box provides a stimulating way to study medieval life. It is not, however, a history box, as we intended. Drama can communicate "truths" about life and human beings, but it is still an interpretative abstracted look at the reality. We contrived a "reality" from actual accounts and facts, to fit certain generalities. But, the events never happened, the people are proto-types, and the place is fictional. We designed a sociological-dramatic case-study; it concerns itself with the roles people played in the daily life of a village, and in the more dramatic circumstances which drew them together. Is this the best way to make history come alive?

This evaluation of the Medieval People Box has given us confidence in the positive value and feasibility of "role" playing as a teaching and learning method. It has also suggested that the approach of drama has limits in what it can teach children. More needs to be done on working out strategy and detailed lesson procedures. There is also a need to intensify the reality by perhaps choosing a real place and/or historical figures.

CHANGES

Broad Outline for the Revision of the Medieval MATCH Box

The changes can be outlined briefly, since the reasons for them are thoroughly covered in the preceding section. Simply speaking, we wish to retain roleplaying, but create a sequence of lessons which will give the children a deeper and more lasting knowledge of the people they are portraying. In a revised version, the filmstrip

trip, the handling of the objects, and the reading of character books, could be preceded by a dramatic episode which would launch the children into the unit dramatically and quickly. Then, when they come to the media they will be seeking information, with a sense of purpose. The scene might be very mysterious and controversial so that curiosity rises to a peak. This means finding or designing episodes which will surprise the children's expectations, and make them hungry to discover the real people who lie behind the stereotypes. The children would be presented the task of putting on a play, which they could make up themselves. There are seeds for several such plays in the recorded story, monologues and character books as they now exist.

The teacher should be allowed more time to use the Box, so that she and the children can iron out mechanical difficulties of group work and of putting on skits in time to have a satisfying and genuinely good final production.

We need to rewrite the objectives of the lessons so that the teacher can believe them, accept them, and hold them in mind as she uses the Box. Roleplaying can be a meaningful way to learn about historical people: we are sure of this now. We need to show the teacher how to use it effectively. If the teacher has a clear idea of what she and her class must accomplish she will probably feel freer and surer as she goes along. And, a purposeful design does not dictate the attitude with which the teacher must treat her children. We have been naive about this question of freedom and spontaneity in the design of many of our Teacher's Guides. Now, with the experience of designing these Boxes behind us, we can write guides which give firm momentum to a unit, and communicate more effectively with the teacher. Before each lesson we should state those cognitive, attitudinal, and behavioral learnings which need to take place before the children go on to the next lesson. We did not spell these things out, partly because we wanted the children to have freedom to roleplay unhampered by rigorous criticism. Because they had not been given a disciplined learning experience about the characters, the early skits were somewhat disappointing, though fun. We can solve this problem by presenting less roleplaying in the beginning. The children will see people in dramatic situations earlier, but will act them out after they have done the "homework" they need to do in order to present good skits.

These revisions will require the children and the teachers to be more critical of themselves as they work out their play. The challenge will be greater and the rewards more satisfying. It is hoped that the teacher and children will have such a gratifying and "real" experience together, that they will set new standards for themselves, and continue to create together meaningful and exciting learning experiences.

The High Road: Making History Meaningful

There is still much to be discovered about how to teach children about people, in a time or place which are remote and unfamiliar to them. We do not question the value of this experience, as it seems that the conquering of the unfamiliar and new is at the very heart of learning. People can justifiably ask, however, if medieval people are important to learn about as we prepare children to live in our modern and fast-moving society. They are so different that relevance quickly becomes an issue. Yet somehow this was not a problem for the children who used the Medieval Box. For the Mexican immigrants in Salinas, the Negroes in Roxbury, and the suburban middle class children of Concord, the appeal of these characters and of the times was very great. This may not satisfy the sceptics, but seems to be one good reason to teach the middle ages. There are others. The society and the life were very different, yet people are people, at any age. The particular approach we chose, made it possible to teach about medieval knights, and priests, and peasants as human beings, not caricatures of an age. In a world where tolerance for the unfamiliar is becoming so necessary, it is important to give children as many experiences as possible in the seeking for those qualities which tie people from all places and ages together. We must also teach them to respect and love the differences. Medieval People created a world and a life style which is interesting and beautiful in many respects, and though their day has passed, much of their heritage lives on, in the caste system of India, in the pleasure and satisfaction of making things by hand, in the liturgy of the catholic church, and in the rural lives of European peasants. These are all things we took into consideration when we decided to create this Box; they continue to make the content of the Box a viable one for children to study in school.

The viability of the approach has almost proven itself. However, there are further questions to be asked about drama as a medium. In the Medieval People MATCH Box we tried to make a community come alive by contriving a "true to life" but not actual place, and presenting it to the children through the literary medium of drama. Though we failed to teach all that we wanted to, and sacrificed the factual quality of historical actuality, we have brought the remote people closer to these children. By teaching about a people in this way, we have opened an argument with historical purists because we are not teaching about real people. If we followed their lead, we might have designed the Box in the following way: Let us suppose we had decided to teach about Charlemagne. We would gather together clothing, belongings, fragments of court records, and pictures of him, his family, and his colleagues. Drama might not be entirely absent. We could choose happenings which are important historical events, in which the significance of Charlemagne would be made apparent. We and the children could recreate them dramatically.

The children would try to reconstruct an image of a "true" man, by examining his physical remains, and reading controversial accounts about him. They would be acting like historians, learning to piece together the facts, and to come up with a viable interpretation.

There are many positive features in this approach to teaching history; one is that it makes history more meaningful than a textbook can. However, the childrem might have difficulty in grasping the reality of this man. They may lack the proper historical perspective and mental abilities to really play the role of historians and judge the viability of their interpretations. Drama, or imitating and acting out people's behavior, is a very natural way for children to learn. If they were to actually put on a play about Charlemagne they would probably come closer to knowing him as a person, but they might end up short-changed on knowledge and understanding of the era as a whole. In contrast, St. Aliquis, a specific community, is also representative. A study of it can give the children a depth experience in one "reality" but also offer them a breadth which is not available in the Charlemagne unit.

Let us consider another way in which we could present the people of an historical time to children. We could create a box, in which the artifacts of a group of people become the principle source of information. We could put tools, games, utensils, books and paintings of the middle ages in the box. We might also include other "artifacts" of the era, of a less tangible nature such as prayers, rituals (knighting ceremony) or songs. These things would be supplemented by film material showing everything from how a spindle is made, to how to carry out a knighting ceremony. There might be information about guilds, and raw materials for actually putting some of these "artifacts" together. Because these things have been created by a people living in a common time and place, they will speak to the children of the people, and their lives in a vivid manner. The lessons would include a wide range of activities, perhaps even the dramatic activity of putting on a ritual.

The children would certainly enjoy this box. In fact, we have already created Boxes and exhibits at the museum where this kind of learning experience has been provided. The Eskimo MATCH Box and the Japanese Tea Ceremony given at the Museum are examples of this kind of treatment. Still there is something missing from this experience. It does not make the historical personalities come alive. It can teach the children much about the people as makers of things and it can teach them about the roles of these people in the society, but it does not bring the children into empathy with them as human beings. These kinds of things only come out when the situation in which the people find themselves is no longer neutral but goes into people's personalities, hopes, dreams, and fears. In this kind of experience, the artifact is judged by the amount it tells the child about the particular person who would wield it, and how well it helps that child to identify with the character. A good example of this is the chain mail glove. Some do not fill the bill, but this is a fault in our judgement, not a universal problem with artifacts. The experiences with the Hats Box, the one which was abandoned for the Paddle Box, give us confidence in the ability of an artifact to suggest and draw out a good characterization from children. Thus in the Medieval Box, the artifacts are asked to play a different role than in other Boxes, but not a role which is inappropriate. Research could be done on this question, however. Ideally, the design of other boxes which I have been discussing are probably all viable ones, and these kinds of units should be made available to children at some point in their education. A phenomenon for further research, is to determine over what mental bridges, by what associations the children make Jean, or Lord William meaningful to themselves. The Medieval Box, with its present design, can be a useful instrument in such an exploration. The question simply put is, if you want to make the people of history meaningful, understandable, and relevant to children of the fifth and sixth grades, what are the best approaches to employ? We have come some part of the way in answering this question, but in the process new issues have been raised. We have only taken the first steps in a quest which curriculum planners, teachers, museum people, and children should be encouraged to continue.

APPENDIX D-12
Box Report Summarized
Japanese Family 1966

MATCH Box Project

U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

JAPANESE FAMILY 1966

BY SUSAN SCHANCK
BINDA REICH

BOX DEVELOPED BY BINDA REICH
SUSAN SCHANCK

PROTOTYPE COMPLETED SEPTEMBER 1966

EVALUATED FALL 1966

SECTION I: GENERAL FINDINGS

OVERVIEW of BOX

"Japanese Family 1966" addresses itself to a basic problem in social studies - how to communicate to young children a real sense of another culture. In creating a "culture" box, certain issues keep recurring: What can one say about another culture? What should one say? In what form should the unit be presented? What materials communicate best? What can the children be expected to learn? One is always haunted by the fear of being non-authentic, non-representative, of adding to established stereotypes, of leaving false or even bad impressions. One is plagued by what ought to be understood and also by what might be misunderstood.

We wanted children to be able to get inside Japanese culture, to be able to look at it from the inside out. We decided, therefore, to use the family as our touchstone. Children already know and care a great deal about families. The similarities between Japanese and American families would give us something to build upon and would provide a context which would make the differences meaningful.

The Box falls into three main sections. The first section consists of two lessons in which the class is introduced to Japanese families and some of the things that would commonly be found in their homes. The class is divided into five families: the Tanakas, Hondas, Kawais, Yoshidas, and Yamakawas. These families represent various middle class occupations and backgrounds. Each child has a specific role in his family. The children remain in their families and in their roles throughout the use of the Box.

The fathers of the five families are given Family Guides which help them to run their families. These Guides are coordinated with the Teacher's Guide. They are the father's tangible source of authority as well as the source of instructions for guiding his family through the lessons. Each Family Guide opens with a letter which establishes the spirit of the whole Box.

Mr. Honda
Musachino
Japan

Honda Sama:

We are very sorry, and apologize for being so bold as to write to you without an introduction.

We also hurry to beg your forgiveness for being so direct as to actually tell you what to do. But we cannot come personally to make your acquaintance and help you while you are studying Japan. Therefore we are forced to write what we hope will not be a bothersome letter.

During the time that you study Japan you will have to act as the father of the Honda family. This means that keeping the Honda Family Guide is your responsibility. You may let other members of your family look at it, but you should keep track of it.

The instructions in this guide are for you to read. They tell you how to help your family learn about Japan. You should read the instructions for each lesson before it begins, so you can run your family operations smoothly. If you have any questions ask your teacher. Be sure to ask the questions when your family isn't around so you won't lose face.

We humbly hope you have fun being Mr. Honda and learning about Japan.

Most respectfully yours,
Binda Reich
Susan Schanck
Binda Reich
Susan Schanck

the Children's Museum
the Jamaicaway / Boston 02130 / JA2-4800

Family Guides also contain role cards for each member of the family. These describe the roles of each member of a Japanese family and explain how each role player should behave in the classroom. For instance:

DAUGHTER'S ROLE CARD

> You are the daughter. You are LEARNING how to be the ORGANIZER of a home. HOW TO CARE for things, and how to keep HARMONY.
>
> IN JAPAN
>
> Outside your home:
> You go to school. You study hard, especially those things that will help you to be a good housewife and mother. You play with your friends after school. You like to read comics and girls' magazines, and listen to records.
>
> At home:
> You read, study, and watch television. You help your mother with the household chores and are served after your brothers. You try to bring honor to your family. You are expected to do favors for your brothers.
>
> IN THE CLASSROOM
>
> You try to follow the directions that are given you as well as possible. You try to bring honor to your family.
>
> You don't bother the father of your family with little problems; ask the first son or the mother first.
>
> You try to act like the mother of your family.

After being assigned roles and discussing them with each other and the teacher, the children are introduced to their own Japanese family room. A low table is provided with the Box. The teacher sets this up with some of the things that might be found in a Japanese family room, such as comic books, a real Japanese family album, calligraphy brushes and ink, a magazine and, of course, a television set. (the TV is in reality a 8 mm film loop projector which comes with 8 loops on various aspects of Japanese life.) Both the roles children play and the objects in the family room have enough familiarity for the children to really identify with them.

The next part of the unit consists of three lessons. In them the children get a deeper sense of what it is to be Japanese by doing things that the Japanese do in the way the Japanese do them. Each family works with a different set of everyday Japanese objects which are much less familiar to them than the Japanese objects they have seen so far. The children learn the behavior patterns that occur in the family room when the objects are being used there.

The two major Japanese religions, Buddhism and Shintoism, are studied by the Tanakas; they make a Buddhist altar and learn how to pray at it. The Hondas learn about Japanese shoes. When and where different kinds of shoes are worn tells them a great deal about Japanese houses and the correct manners for moving about in a house; they make different kinds of floors for their family room. The Yoshidas learn about Japanese food, table manners, and how to eat with chopsticks. Both modern day and traditional clothing is studied by the Kawais. They learn how and when to wear both boys' and girls' kimonos. The Yamakawas learn how to make a flower arrangement and the ways in which the Japanese bring nature into their homes.

Culminating this independent work is a series of skits or demonstrations planned by the families to show each other and their teacher the proper use of their set of objects. The Hondas go first. They put down the paper mats they have made for the family room and show which shoes are properly worn where. (The four families who follow must now change their shoes appropriately as they go in and out of the room.) The Tanakas now set up a Buddhist altar and say a prayer and explain the two Japanese religions to the rest of the class. The three families who follow them must now change shoes properly and say an appropriate prayer before they give their skits. The Yoshidas show how to eat a meal, the Kawais demonstrate how to wear kimonos, and the Yamakawas make a flower arrangement and hang a scroll in the family room. The family room is now complete and can be used, with proper manners, whenever the children would like.

Following the demonstrations is another set of three lessons which delves even deeper into Japanese families. These lessons define precisely what a Japanese family consists of and give the history of each of the five families. Each family has its own illustrated Family History book which tells the story of that family since 1860. The families learn the distinction between our concept of a family tree which includes all our ancestors and the Japanese concept of a family line which includes only ancestors on the father's side. The children decide which of the ancestors in their histories would be included in a family line by using the Japanese family line rules. These rules help explain why the present day roles are the way they are. Interrelated with the stories of individual people in the Family Histories are descriptions of the political, economic, and social events which have shaped Japan into the country it is today. In the final lesson of this series the children bring their knowledge of the past to bear on their families' occupations now. By first acquainting the children with present day Japan, then allowing them to take a deep dip into the past, and finally bringing them back to the present, we hope their understanding of Japan and the Japanese people will be deepened.

EFFECT on TEACHER

We hoped the Box would bring about a change in the teachers' and children's attitudes toward Japan, that Japan would be felt not just seen, and that this attitude would be applied again and again whenever they came across a strange or different culture. We hoped, too, that it would give the children a reason for caring about the geography, economics and history of Japan.

In terms of the overall success of the Box, 83% of the teachers rated their experience with it as "high" or "very high". Teachers felt that the lessons worked well together and that the Teacher's Guide was clear and fairly well organized. When asked to compare teaching with the Japan Box with their usual methods of teaching, teachers reported the following: 96% rated "class interest in the subject" as "more than usual", and 63% rated the children's "apparent learning of the subject matter" as "more than usual". The Teacher's evaluation forms contained many comments such as "Every moment was fun, and yet their learning was so real which they certainly proved with their endless questions and constant enthusiasm." 100% of the teachers said they thought the children knew that they had learned something and knew what they had learned.

Many teachers felt their relationship with the children was changed by their mutual experience with the Box. They said such things as "We seemed to become a closer-knit group," and "I became less of a director and more of an equal - a sharer and a fellow-discoverer." "The children felt freer to ask questions and I to answer them."

When asked which lesson they liked best, most teachers said Lesson I or one of the 3 lessons in the middle section. They also thought the children liked these best. Both teachers and children liked the last set of lessons least. The concepts in this set were difficult to grasp and the activities not as real or interesting as in the previous lessons. Also, the Teacher's Guide definitely lacked background information for the teachers.

Many teachers, who were initially dubious, stated that they were amazed at what their children were capable of doing. If the Box did nothing more than indicate to teachers what children were capable of, once their enthusiasm, humor and imagination had been sparked with the right materials, it would be a significant contibution.

EFFECT on the CHILDREN

From the children's point of view, the Box was a success because it encouraged them to do "fun things" in a school situation. They also got to control and plan something on their own, often for the first time in their school lives, and the results were revealing both to them and their teachers.

The interest that the Box had for the children seemed to carry over to their lives outside of school. Many teachers commented on the number of parents who were interested in the Project because their children talked about it at home.

The family, as the focal point of the Box, was more powerful than we expected it to be. There was a real emotional impact which captured and held the children's attention. They fell into their roles easily and, therefore, were really able to concentrate on the new things they were learning.

One teacher gave some nice examples of her children's involvement in the role playing situations:

> "Claudia - intelligent but domineering - as wife of unintelligent, also domineering husband - said 'It took me an hour, but I finally learned a Japanese woman keeps her mouth shut'.
>
> Cocky, bombastic David, after answering two questions incorrectly, despite frantic whisperings from his family, confessed to school secretary: 'Boy, did I lose face today!' And he buckled down.
>
> A miracle of character reformation in Honda-son - Steve, a class problem - became a model head-of-house, possessive of order in family room because his family made mats."

DISCUSSION of GENERAL FINDINGS

The information we have gathered from the data has given us many clues about concrete ways to improve the Box. The order of the lessons should be changed so that there isn't a let down at the end of the Box. The teacher certainly needs more information on the last three lessons, and more connections need to be made with American children's own experiences so that she can better understand the implications of the events in the Japanese Family Histories.

We think that much of the success of the Box rests on the role-playing/family strategy. Our feeling is that perhaps children at this age are beginning consciously or unconsciously to be more aware of and to question what's happening in their own families: Just why is Dad's rule law? By seeing the rules for a Japanese family's behavior written out, by acting them out themselves, and by finding out why they came to be the way they are, the children are perhaps able to make more sense of their own world.

The form which role-playing takes in this Box seems significant. Perhaps role playing isn't even the right word. What happens in the Japan Box is more like a serious game of playing house. The rules of the game as it is played in Japan have been adapted to fit the way the game is to be played in a classroom in America. Sammy Jones, for the sake of the game, changes his name to Sammy Tanaka and follows the rules for playing any Japanese father. He doesn't have to try to become someone else inside - only outside. The activities that he is carrying out are real. He directs his family in making a Japanese altar, tells mother to see that all the family dishes are put away or acts as a go-between for a member of his family and the teacher. The nice thing is that when the rules are really followed, very "Japanese" things happen: father is praised and gains face for something good his daughter did, or is blamed and loses face for her misbehavior; from happenings like these, a real internal understanding takes place.

When the child,with his own experience of life, meets Japan through this Box,we think there is a spreading of interest and real learning about both Japanese and American families. We can only guess about the self-knowledge generated by the Box, but we do know from our data that the children do understand and care about Japan. As one teacher said, "I think the rest [class with exception of 3] learned something for life - an insight, glimpse into another world; an art, a grace, a beauty; an attitude, a skill, a curiosity to know more - an understanding of the kinship of man - one or more of these, every participating member now possesses about Japan."

The success of the Japanese Family Box raises many issues. Would "the family" be a good way to approach other cultures or did it work especially well for Japan because the Japanese themselves are so conscious of family roles and rules? Are there other situations - ecomonic, political, etc. - in other cultures that could be made into a role-playing game that would captivate children in the same way that the family roles did? Would the same kind of role-playing game work at other grade levels or is it particularly appropriate for the 5th and 6th grade? Future Boxes would do well to explore these issues.

APPENDIX D-13
Box Report Summarized
Waterplay

MATCH Box Project

U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

WATERPLAY

BY NANCY OLSON

BOX DEVELOPED BY NANCY OLSON
ERMA HIRSCHFELD

PROTOTYPE COMPLETED SEPTEMBER 1967

EVALUATED FALL 1967

SECTION I: GENERAL FINDINGS

OVERALL PURPOSES

The Boxes of the first and second Generations with one exception were developed for grades 1 through 6. While planning the third Generation, we became interested in designing media to suit some unique aspects of nursery school and kindergarten education. Children of this age have yet to learn the skills of reading and writing; they often exhibit a singleness of purpose in much of their activity, focusing intently, on things that are of particular interest to them; the unstructured atmosphere gives free reign to their natural curiosity. This uniqueness of the 4-5-6 year olds presented a new challenge to us. It meant more than ever that materials designed for use at this level must stand on their own without reliance on verbal directions or previous experience. They must encourage natural curiosity, and invite explorations on many levels. They must provide open-ended activity that could be continued in many forms. The experiences which the materials foster must enhance and support future learning experiences.

We sought a medium which would serve not as an end in itself but as a means through which a child could experience, discover and explore. Water is the medium we finally chose. Our reasons: children are naturally intrigued by it; it presents many lively opportunities for children to learn how to search out their world; and the experiences that they have in play with water could provide a good foundation for building knowledge and understanding of science.

MATERIALS

Plastic Tubs: The Waterplay Box provides two transparent plastic tubs that stand on detachable legs and can be used separately or be joined by a bridge. In these tubs most of the waterplay happens.

Basic Waterplay Equipment: These materials are contained in a net bag which serves a double purpose - keeping similar materials packaged together, and providing a convenient means of drying them after they are used. The materials themselves are cups, funnels, squeeze bottles, jars, pumps, measuring cups and spoons, spheres with holes, a U-shaped tube, a spiral tube, etc. The Guide suggests the children begin waterplay with this rich group of materials in a free play atmosphere.

Water System: The "system" is a collection of troughs, water wheels, and a fountain, all mounted to magnets so they will stick to a steel panel which stands upright in the tubs. These parts can be organized to work together. The water system materials are more sophisticated than the basic equipment and are best used after a child has had much time to explore the basic equipment. In play atmosphere the children often begin by experimenting with individual pieces of the system. They figure out that they can turn a water wheel by pouring water over it in certain ways. The fountain is often quite a puzzle, but sooner or later the children learn to raise the reservoir above the spraying nozzle to get it to spout water. At some point, children begin to make connections, by perhaps placing one water wheel under another, so that it will be turned by the drippings of the other wheel. It is at this point also, that children begin to cooperate in building a system. A child will want to add his water wheel to what another child is building.

Bubble Frames: These are three dimensional open frames made of copper wire in geometric shapes such as a cube or pyramid. Although especially constructed to show the varied soap films which form between the wires, they can also be used for blowing bubbles.

Tubing: There are about 20 lengths of tubing ranging from 11 inches to about 1 1/2 feet. Some have enlarged ends that slip over smaller ends of tubing, connecting them solidly. To make more linkings, there are Y-shaped connectors and straight connectors. Like everything else in the Box, the tubing was designed for free play in any way the child desires. He may use the tubing by itself, or with other materials: the pumps, funnels, bottles, the water system.

Film: This seven minute film follows a few children through puddly streets to a park. There they splash and play and do all the things children do in a pool. The camera takes the eye close to beads of water, hands rippling the water, feet sloshing through puddles, sunlight glinting off slick water surfaces - things you see and feel only when you are really engrossed in the play.

Photographs: There are 8 photographs of children involved with water in various ways at the beach, in streams, in the mud. These are included to be used in any way the teachers and children wish: just to look at, to initiate discussions, to inspire language arts activities -- basically to support and extend the experiences the children are having in the water tubs.

Record: One side of this record contains a series of common household water sounds: water coming to a boil in a kettle, a toilet flushing, a bath tub draining. The other side contains a series of water sounds in nature: sea waves breaking on rocks, streams rushing. Like the photographs, the record may be used in many ways - as a guessing game, as a matching game with the photographs, as a stimulus for oral expression, etc.

Aprons, Mop, Sponge: Eight vinyl aprons are included for the groups of children who play directly with the water. There is also one for the teacher.

APPROACH

When a child, water, and materials come together, exciting things happen very naturally. As the child plays, he becomes increasingly aware of what is happening. If he can become aware of things on his own, something special has taken place. Very little specific direction from the teacher is needed, or even desirable. Adult impositions can get in the way of the child's explorations, taking him off the track of something tantalizing, frustrating his own curiosity. The teacher is important as a person to share the child's explorations. Sometimes, however, she is needed more directly to ask a question that will encourage the child to look more deeply, yet still allow him the freedom and flexibility to explore the world of water creatively, at his own pace.

OVERALL STRUCTURE

Although the Waterplay Box is a highly unstructured experience for the children, it was necessary for us to structure our search for materials very carefully. From a great variety of materials we screened out those that involved the children most and had the most potential for a wide range of experiences. This screening was done in extensive try-outs with actual classes in public and private schools. By observing carefully the natrual selection the children made time after time and the numerous discoveries they made on their own with the materials they selected, we slowly eliminated those materials that held the least potential. Thus the structure of the Box is basically child-centered; it comes directly from the child and his needs and choices, not from some outside force. He moves at his own pace, finding and pursuing what is meaningful for him.

EFFECT ON TEACHERS AND CHILDREN

The Waterplay Box was evaluated in 22 classrooms in the Boston area and in Somerset, Pennsylvania. Sixty-eight percent of the evaluating teachers rated the overall success of the Waterplay Box as "high" or "very high". This same group of teachers were unanimous, however, in rating their children's response to the Box as very enthusiastic. Here are some typical teacher comments: "Children loved Waterplay."; "Most exciting activity in the room. Complete abandon and none very concerned about getting wet."; "They really concentrated on what they were doing." The data suggests that the 68% who gave Waterplay a high rating were comfortable in the unstructured scene the Box fosters and perceived that the children were not just playing, but were decidedly learning. Two comments are apropos here: "I was dubious about just letting things happen, but this is the way learning took place." "They are really working, not playing...I'd call this purposeful play."

The Box had its minority of critics. Eighteen percent of the teachers rated their Box experience as only "average", and 5% rated it "low". These teachers were uncomfortable with the Box because they prefer to teach in a more structured way than the Waterplay Box allows. They suggested improving the Box by adding "specific lesson plans","general and specific objectives", and "science principles interpreted for small children" because they feared the children were just playing in this free atmosphere.

All the teachers appreciated having the materials gathered for them, especially the more exotic ones that they would not be able to collect. The water system was the most popular group of materials. Comments about it: "Most educational part."; "Highlight of the project."; "More interesting to the children than anything in the Box." While some children used the water wheels and troughs separately, many others designed systems with the materials.

The basic equipment, while not as exotic as the water system, was very popular too. A few of the pieces are a bore; they don't "do" anything with the water. The often-used pieces are the ones that "do something", or that present a puzzle to be solved. Chief among these are the pumps, squeeze bottles, the spiral tube, and a few others . Experience with the simpler materials in the basic equipment does seem to be necessary before the child can do much with the more complicated materials like the water system. The children seem to have to get their fill of certain simple experiences like pouring before they are ready to try new things. Even the upper elementary children who participated in the Box went first to the simpler materials.

The tubing was less intriguing than the basic equipment and the water system. Much water experience seems to be necessary before the children will use it. The tubes do not seem to do much in the eyes of the child who does not know how much water can do. However, those children who did play with the tubing often did ingenious things with it.

To the 50% of the evaluating teachers who used it, the film was a decided success. The children were enthusiastic about it, some even adding water sounds to it spontaneously. Unfortunately, we have no data about how the film combines in the child's mind with his own concrete experience with the water.

The other two abstracted Waterplay media, the photographs and the record, were less enticing than the film. The photographs were used, enjoyed, and responded to by the children, but not with the gusto triggered by the film. The record, in contrast, reached only a few of the children. Waterplay seems much more tactile and visual than auditory for the children. They had trouble recognizing the sounds, and were often uninterested. The one group of children who were intrigued by the sounds of water were the older children. They were able to identify them, and enjoyed matching them to photographs.

We don't know exactly what the children are learning from Waterplay. But the intensity of their work/play certainly indicates that important learnings are occurring. Teachers who watched the children saw them discovering many pleasing things: that the fountains will spray only when the reservoir is higher, or that the water won't come out of the salt shaker when its cap is on, or simply that water can go from a funnel into a bottle. One teacher wrote: "The children delighted at their own discoveries....just convinced me more how important this type of activity is."

DISCUSSION

Waterplay in a free atmosphere does work. Giving the child the freedom to choose his own materials from a rich variety allows him to play/work at his own level, at his own pace. He is neither pushed too fast, nor held back and bored because he is ahead of his class. The learning is individualized, and hopefully, the teacher will be free to watch it happen and be tuned in to help the child who gets stuck. Strong structuring from the teacher inhibits the child's learning. Interposing a new material, or a different puzzle, often breaks the flow of what he himself is involved in. And usually, his attention does not shift to the new suggestion. When the children are left free to make discoveries on their own, special things happen, and you can tell by their faces that the children know it.

A rich variety of materials is necessary for a rich variety of experiences to occur. It is the materials that structure the experience, so choosing them carefully is imperative. The more the materials will "do" with water, the more provocative they are, the more the child will be stimulated by them, and learning from them. In selecting materials, one should watch the unusual child, and include materials that delight him too, even though they may not be generally popular. You need a variety of media as rich as the variety of children.

The Box was designed to include media that would add another dimension to the concrete water experiences the children are having in the tubs. From pouring, squirting, feeling the water, the children go to abstractions of this water experience in the form of the film, the photographs, the record, and class talk. We know that the children draw some relationships between their own water play and these abstractions of it. The exact nature of this feedback, and how it might aid a child to grasp abstractions and symbols, is not known now.

The Waterplay Box suggests some applications. It tends to bring out the withdrawn child, making him more confortable and more expressive. It also has a good effect on the emotionally disturbed child, usually calming him, relaxing him. From the enthusiasm upper elementary children have toward water play, it seems there is potential for play with water in the upper grades too. The Waterplay Box can also be a good vehicle for teachers. A science consultant who used the Box extensively with several of her teachers commented that most teachers are "probably not too attuned to the children and what they are learning and what they will be ready for next." While watching the Waterplay Box in use, she thought teachers "couldn't help but react more to the children, learn more about them, for everything that happens comes from them." She said the Box opened the teachers' eyes to a new way of looking at learning - a more child-centered way, a more open-ended way.

RECOMMENDED CHANGES

Breakage of certain materials is a problem. All materials should be scrutinized by a professional designer to make them more durable, less expensive, more provocative, and more beautiful.

We do not suggest any changes in approach.

APPENDIX D-14
Box Report Summarized
Imagination Unlimited

MATCH Box Project
U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

IMAGINATION UNLIMITED

BY SHARON WILLIAMSON
SUSAN WILLIAMS

BOX DEVELOPED BY SHARON WILLIAMSON
SUSAN WILLIAMS

PROTOTYPE COMPLETED SEPTEMBER 1967

EVALUATED FALL 1967

SECTION I: GENERAL FINDINGS

Imagination Unlimited seeks to create opportunities for school children to give their individual interpretations of and reactions to a set of stimulating words, objects, photographs, and films. The Box is also designed to encourage an appreciation for the expressive qualities of words, and to give children an initial sense of the "why" of language. In this unit, we do not intend to develop specific skills or to teach a body of knowledge. The Box focuses upon what's already in the head of the child, not those things which are introduced from the outside. The approach is characterized by a potpourri of games, activities and exercises in which the children are given something to respond to. Sometimes the response is structured: children are asked to describe a hidden object for others to guess; and at other times, the task is very open-ended: to describe someone's feelings from observing their facial expressions. In every case, the Box is meant to be used with a light touch so that both teacher and child freely engage in honest and spontaneous dialogue. The Box centers upon the capacity of every child to imagine and offers a springboard to this capacity - hence the title Imagination Unlimited.

MATERIALS

The contents of the Box are contained in two wicker carrying cases.

Objects

The objects in the Box were selected primarily because children like them (as shown in tryouts) and secondly because they have interesting descriptive possibilities, attractive tactile characteristics, and generally offer food for the senses and imaginative thought.

Feather flower: This is an interesting object because the leaves and petals of the flower are made of feathers. This flower, a thing of nature, is made from the feathers of a bird, another part of nature.

Rabbit Skin: the rabbit skin is furry on one side and cleaned (tanned) on the other. Children often like to feel and compare the two sides.

Slinky: this is a toy which is not only amusing to play with, but also a good object for stirring the child's imagination through his tactile and aural senses.

The Pin and Cup Game: this pin and cup game, (also called bilbouquets) is a very old game which originated in Western Europe during the Medieval period, and was carved in France. Its name is not obvious and children like to think up names describing its unusual shape and movement.

Indian Tripods: the wood tripod was carved in one piece from a branch of a Shesham tree, with each "leg" the body of a weasel like animal. It is used in East Indian temples to hold a ceremonial bowl of water.

Totem Pole: the totem pole was carved and painted by a tribe of Michigan Indians. Totem poles are supposed to represent the ancient lineage of an Indian family.

Geta (pronounced 'gay-ta'): These are Japanese shoes, made of straw and velvet and are worn outdoors or on cement floors.

Starfish: Although the starfish is a familiar object to most children it is still interesting because it does not look like a regular fish, such as a trout or a guppy. Children are often intrigued by the idea that a fish is in the shape of a star.

Fan: the fan is unusual because it is carved of sandalwood, a very light and fragrant wood from Malaysia.

Purse: the purse is quite old, has a musty odor, and is the type that elegant ladies took to a grand ball about a century ago.

Stethoscope: an object which children see but cannot usually handle on their trips to the doctor. Its shape and its structure and function are interesting to the children.

Goggles: the goggles were hand carved to look like those made by the members of the Netsilik Eskimo tribe in Northern Canada. They wear them while hunting for seals, in order to keep the glare from the ice out of their eyes.

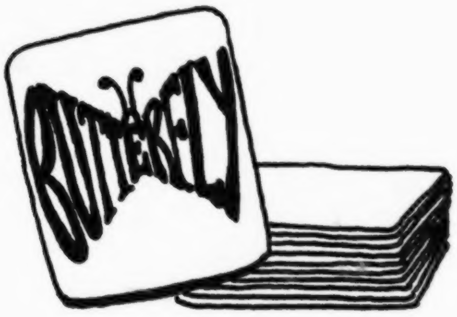
Sperm whale tooth: an oversized tooth with a very hard white surface which the children like to hold. The size of it is especially appealing.

Films

Through two films, each called Rainshower, the children see a rainshower from two different viewpoints. One is an artistic film portraying a photographer's viewpoint. The other, taken on location at a weather station, shows the weatherman's work-a-day viewpoint.

Word Cards

There are 12 large word cards and 72 smaller ones.



The ideal word card represents a a word without drawing a particular picture and limiting its definition. For instance BUTTERFLY, is written with the upper part of the 't's as feelers, something common to all butterflies. All our word cards do not reach this ideal, i.e., devil is represented by a drawing of a devil.

Photographs

There are 25 mounted photographs. There are several portraits of an older man and a little boy portraying various emotions. The others depict a larger range of subject matter: a child looking out at the ocean, a group of people waiting for a subway, and a cemetery.

Miscellaneous

Books:

* "Let Them Write Poetry" by Nina Willis Walter
** "Teaching the Unteachable" by Herbert R. Kohl
"Miracles" by Richard Lewis

Of these three books, two are essentially for the teacher's use*, and the other** for random use by both the children and the teacher. The last is a collection of poems written by children in several English speaking countries in the world.

Tape recorder: The Box contains a small tape recorder which is used to record stories that the children make up in groups.

STRUCTURE and LESSONS

The Box is divided into four groups of activities, each using a different kind of media. In the first section, the children play a number of games, with the word cards.

In playing the first game, Word Webs, the class is divided into two groups, the "Wordlings" and the "Echoes". As the Wordlings cover their eyes, the Echoes look at a word card and each child in the group writes the first word that comes to mind. Then the Wordlings examine the response words which the Echoes have written down and guess what the stimulus word was. After the original word is guessed and there has been some discussion of how the word associations came about, the groups reverse roles. Thus, the children are stimulated to think about how words are associated with each other. This sort of expansive thought, which frequently involves consideration of synonyms, parallels, anyonyms, homonyms, is good practice for creative writing.

Two games, Title Bouts and Picture This Word, allow the children to work individually. In playing Title Bouts, each child combines two words, chosen blindly from the Word Card Deck into a story title and then write a story stimulated by the title. Picture This Word involves them in making their own Word Cards.

Tall Tales is designed for a group of about five children. Together they make up a story, each child weaving a Word Card into the story. In this activity, the children exercise their imaginations and also tune their attention to the idea of a story being created with other children.

The first lesson in the second section, Hide and Speak, asked the children to use their imaginations, their sensory impressions, and their descriptive powers to communicate. The class is divided into groups, each group containing five or six children. Each group receives an object which is hidden in a bag from the view of the rest of the class. Those in the group think up words and phrases about the object without naming it. Lists of these are exchanged and the groups are then to guess which object is being talked about.

Also in this section are four optional activities for use with the objects. The first, Naming a Nameless Object, involves descriptive ability and creative thought. An unnamed object is left out for everyone to look at and study in their spare time. After the children have had some time, the names are discussed, and perhaps a class poem is written incorporating them.

The next activity involves becoming an object imaginatively and writing from the point of view of that object. In the third activity, the teacher walks around the room with an object and the children say as many things as they can about it. This is an attempt to broaden their perspectives of an object.

The last activity is to be played in pairs and its purpose is to stimulate thoughtful communication. One child in the pair has an object in a bag; he writes descriptive phrases about it and hands them to the other child who draws his conception of the object.

In the next three activities, called Picture Games, the children are given a variety of photographs to respond to in discussion and in writing. They interpret pictures of people, close ups of facial expressions, and natural phenomena, as they wish.

The children see two films about one phenomenon, a rainshower, and discuss the differences between them. There is also an opportunity to do some writing here.

In a game called Eventures the class agrees upon an event commonly known to all, and then plans a series of presentations of the event which will demonstrate several different points of view.

GENERAL FINDINGS

Effect on the Children

All of the teachers who took part in the evaluation felt that the Box experience was extremely valuable, and was a compliment to their regular language arts curriculum. They felt its most essential contribution was in the area of forming positive attitudes. The children gained an awareness of the power of words, and they gained confidence in their own perceptions and interpretations. They became increasingly eager to hear their classmates' ideas. Looking at things from different points of view became enjoyable and understandable.

These findings are backed up by the high ratings they gave to the learning value of the experience. Forty-eight percent said the Box had a very high degree of learning value, and 29% reported a high degree. Comments throughout the TFA also support these findings:

> "I feel that it has helped the children to an awareness of words and their connotations, to a greater use of their senses and an ability to communicate their thoughts to others."

> "I feel that every child in my class has gained greatly in both oral and written expression."

> "New and useful words are bound to creep into this adventure; it stimulated thoughtful communication."

The Box was generally more successful with fourth and fifth graders than with third graders. Younger children didn't sustain interest in objects they didn't fairly quickly understand or find valuable in their lives. They couldn't concentrate very long on an unfamiliar thing.

The materials generally served their purposes well: the children were quite intrigued by and responsive to them. Sometimes the children were asked to do something they didn't like or didn't understand, but in general the materials held interest long after a specific activity was over. There were some outstanding successes, and a few near failures. Pictures of people, the whale's tooth, the stethoscope, the film and "Rainshower" #1 were consistent favorites. We need to try to understand why if we are to improve on the collection as a whole. On the other hand, some Word Cards were incomprehensible, and some of the pictures failed to arouse interest. "Rainshower" #2, the film about the weather station, was felt to be inferior by many children and teachers, partly because it had such a beautiful competitor, and partly because of its scientific, "black and white" quality.

Effect on the Teacher

Apart from their enthusiasm about the success of the Box with the children, the teachers praised it as useful and rewarding to themselves. Here are two teacher comments:

> "A refreshing change from the usual treatment of teaching children the art of using language."

> "I have become aware of various new creative writing activities and motivational devices."

Thirty-nine percent of the teachers said it gave them a very high degree of personal satisfaction, and 48% said it was a highly satisfying experience. The open-ended approach was given favorable commentary. "A highly imaginative approach to the teaching of language arts." Another teacher remarked on how she "had a more relaxed feeling because the feeling that 'I must produce' was not present in my mind." Many teachers remarked positively about the outline quality of the Teacher's Guide. Two teachers wrote, "It was excellent, clear, and thorough", and "it mentioned them in points without telling the teacher what to do."

The unit was thought to be very highly relevant to the curriculum in 29% of the cases and highly relevant in 42%. The rest of the teachers voiced the opinion that it was moderately relevant. One teacher seems to have summed up the feeling: "The unit was never a sore thumb, I could always correlate it."

According to many teachers, the Box helped the children and the teacher get to know about and respect each other. One teacher says "I found I had many opportunities to compliment the children on their own ideas. The children began to realize that their own opinions were important". Children also worked well together and wanted to hear each other's ideas. One teacher said "They learned that in order to record a successful story, they would have to work together and allow everyone to present his or her ideas. Their criticism was constructive, to the point, and not downgrading." Another remarked "I think they began to respect one another's ideas some - they were anxious to hear classmates ideas."

Practicality of the Box

The Box, from all available evidence, seems to be a successful loan item. The objects hold up well for the most part and are simple to repack. Most of the objects are quite easily replaceable. The Eskimo mitten, goggles, and the geta might present some difficulty, but since specific objects are not essential to the Box, these could be replaced by something else as appealing. The wicker baskets are attractive, and hold up pretty well. Fastenings are breaking in some cases, however.

Finally, few teachers complained about the time period of three weeks, although many expressed an interest in spending more time with similar activities and materials.

Conclusions

The Box certainly had very positive effects on the teachers and children who used it. Teachers who grasped the intention and the spirit of Imagination Unlimited succeeded in creating an atmosphere in the classroom in which the children were able to expand their ability to express themselves creatively, and effectively. The problems, as reported by the teachers, seem minor in comparison with the overall success of the Box. In spite of the positive quality of these ratings, it is difficult to determine the specific and lasting value of this Box, and to measure its value as an experiment in MATCH Box making.

DISCUSSION and RECOMMENDATIONS

The Box, as it exists, expresses an ambivalence in objectives: we were - whether teachers were aware of it or not - trying to teach children some principles about communication, as well as to exercise their imaginations. There is a history behind this confusion of objectives. The lineage of the Box is composed of many strains: general semantics, psychological testing, poetry, creative writing, and the relationship between words and experience. When we started, we wanted to create a Box in which a story would be made more meaningful by real objects and other related materials such as film and sounds. We found it difficult to select a story which would warrant this treatment. We proceeded to explore a similar approach to poetry, with activities in which the children themselves would write poetry. We became increasingly interested in the children and their own creativity, and began to look into ways to stimulate them to talking and writing, and using their imaginations. The fact that one's point of view influences how one reacts to a given experience intrigued us, and we sought ways to put this concept across. Now the Box has traces of all these things. The evaluation showed us that the teachers and children really used the opportunities for creativity which we provided, but did not pay much attention to the more intellectual aspects of communication.

The designers feel somewhat dissatisfied with "Hide and Speak" and "Rainshower" though the teachers and children are relatively pleased with these activities. In "Hide and Speak", a group of 5 or 6 children are asked to describe an object they alone can see, so that others in the class are able to imagine it and guess what it is. Since many of the objects are unusual, the others in the class may not even know what the object is, could they see it. Perhaps this discrepancy could be resolved in some way. Generally it's a very popular activity; the children are intrinsically interested in the objects and inspired to read about them: some children who took part in the evaluation made up riddles about unusual objects of their own in their spare time: several teachers mentioned that their children learned the importance of using exact, descriptive language and exercised their imaginations through writing from the point of view of an object. Thus it is a worthwhile acitivity; the above mentioned inconsistency should be resolved.

"Rainshower", to the designers, seems somewhat contrived, though this was never mentioned as a problem by the teachers. The children are asked to discuss the differences between two viewpoints portrayed of a rainshower, one from a weatherman's point of view and the other as seen through the eyes of a photographer. The film portraying a rainshower from a weatherman's point of view was made at the Children's Museum to polarize the other which is a Churchill film. No parallels in structure were created and the children were sometimes put off by one film being in color and the other, not. The differences in points of view about a rainshower were almost too obvious to warrant discussion.

The materials, through further trying out, should be culled and matched with specific lessons. For instance, certain objects might prove to be more successful than others in both the "Hide and Speak" activity and the lesson which deals with the life history of an object. Word cards should be tried out, with respect to the "Title Bouts" and Tall Tales" activities; some combinations are more easily related in a story than others and it might prove that children should at least work with these first, if not exclusively. Also to improve the picture activities, it should be further researched which pictures accompany the best responses. The Rainshower activity needs some major trying-out and reworking.

A testing device might be used to attempt to measure just what the Box experience contributes to children's creative writing. Thus the children would be tested before and after they experience "Imagination Unlimited" in the classroom. Knowledge gained from such tests might be helpful in awareness of how to modify the Box.

Some experiments in varying the sequence of the activities might prove that one sequence is as valid or more so than another.

Conclusions

This Box experience has positively shown the value of open-ended activities to create a creative atmosphere in the classroom. Children can be given quite a bit of freedom within fairly loose directives and their work is a least as good if not better as a result. Such methods might be further developed in many areas of the elementary school curriculum.

What is refreshing and new about this Box are the values it expresses. They are values held in the highest esteem by the designers of the Box, and we feel they are ones shared by many people concerned with the growth and education of children. Richard Lewis, who teaches poetry to children, expresses the challenge to which we were trying to respond in an article called "Bringing Poetry Out Of Hiding".

> "Unfortunately, little use is made of children's natural inclination to think and speak, poetry. So often, the classroom is thought of only as a 'place of learning' where a teacher is hesitant and fearful to deal with the very stuff of children's own feeling and thinking."

He goes on to describe the kind of classroom, we wanted to help create.

> "In each classroom there is an informality which speaks of a teacher who is concerned with what children have to say... it is an informality that leaves room for the spontaneous moment to be as important as any other moment - the illogical to be as valid sometimes, as the logical - the sense of fantasy as gripping as the power of reason.... The children are beginning to be unafraid of being different from each other in what they see and feel - and to express their differences through their own imaginations."

Other MATCH Boxes have certainly allowed children imaginative encounters with materials, but in many of these the goal is to have them learn something about another culture, or a scientific phenomenon or a process. Children recreating an Eskimo seal hunt, or examining ancient rock formations to envision the Jurassic age, are certainly exercising their imaginations. But the Imagaination Box, by shifting the emphasis from the "other" to the children themselves, is expressing an important attitude about the value of children's own reactions to something.

This Box really got through to teachers and children. One teacher who could have written the objectives for us, remarked: "The goals are to stretch children's powers of observation, to expand their ability to express themselves freely, to encourage new insights into and love for the English word." Another teacher defined imagination after using the Box in this way: "Imagination is the ability to see beyond the obvious, to be able to project oneself into many experiences, the ability to get off the beaten path - to get off the ground - maybe to fly a little." All in all, this Box derives its greatest value, not from its furthering of research about combining media, but from its effectiveness in the classroom and its influence upon the attitudes of teachers and children.

APPENDIX D-1
Box Report Summarized
Paddle-to-the-Sea

MATCH Box Project

U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

PADDLE-TO-THE-SEA

BY BUZ BEVER

BOX DEVELOPED BY FRED KRESSE
BUZ BEVER

PROTOTYPE COMPLETED SEPTEMBER 1967

EVALUATED FALL 1967

SECTION I: GENERAL FINDINGS

OVERVIEW of BOX

The intent of the Paddle Box is to bring the story of Paddle-to-the-Sea to children so they can know it, wonder and dream about it, and explore its reaches - Indians, canoes, wood-carving, lakes, shipwrecks, Niagara, lumber mills, songs, Canada.

Paddle-to-the-Sea is the story of a Chippewa Indian boy's dream of traveling through all of the Great Lakes to the Atlantic Ocean. Unable to do this himself, the boy carves a wooden model of an Indian riding in a canoe, christens his Paddle-to-the-Sea, and launches him on the great journey. Paddle encounters many adventures, as he floats through the five Great Lakes and connecting rivers, finally reaching the Atlantic Ocean four years later. Many facts and flavors of the region are presented as under-currents to the tale. A few of the themes which we selected to develop include logging, bulk freighters, ores and other cargoes transported across the Lakes, nature, geography, and history.

The Paddle-to-the-Sea Box was designed for use over a three-week period by 4th, 5th, and 6th graders. There are ten lessons or installments, sequenced by the format of the story, with each step of the journey adding to the student's general knowledge of the Great Lakes Region.

Nine of the ten lessons begin with the teacher reading a few chapters from the book while showing a coordinated filmstrip of the books' illustrations. Students interact with a variety of materials in most of the lessons.

Why We Made the Box

The Project Staff for the past two years had wanted to develop a MATCH Box based upon an existing book. It was not until May 1967 when Fred Kresse saw the magnificent Canadian film based on Paddle-to-the-Sea that we could bring this dream to fruition. Here was a marvelous story which offered a wide range of possibilities for media and classroom activities. Since the Hats Box had met an untimely demise, the staff agreed that Paddle-to-the-Sea might be an appropriate topic for our 16th MATCH Box.

We soon discovered that Holling C. Holling's approach to history, geography and commerce was unique among writers of children's books. He does not overwhelm the young reader with a barrage of facts and figures, yet he manages to present an essence of the Region, be it the Southwestern United States (Tree in the Trail), the Mid-west (Minn of the Mississippi), or the Great Lakes Region (Paddle-to-the Sea). We found Holling's story provided us with a ready-made structure and continuity, essential components when developing such a complex topic as the social studies of the Great Lakes Region. (In fact, one of our evaluating teachers commented that her text book placed the Great Lakes unit at the end of the book because "the authors felt that it is the hardest and most complicated one to comprehend.")

We wanted the activities and media of the Paddle-to-the-Sea Box to bring the people of the Great Lakes Region to life, while retaining those basic topics found in every traditional unit: commerce, transportation, natural resources, and history.

We soon discovered that Holling had spun a yarn of such complexity that we had to select from a number of themes and relationships. Of the social studies themes found within the story, we particularly wanted to highlight the following:

- information about the region derived essentially from Paddle's point of view; namely, the water.
- trees and the logging industry
- beavers and their role in the historical development of the Lakes
- bulk freighters which ply the Lakes and the men who master them.
- personal values

With the exception of trees, these topics are unique to a unit on the Great Lakes.

We had three other goals, in addition to amplifying and enhancing the story of Paddle: 1. to design activities which would appeal primarily to boys; 2. to explore the strategy of using the teacher as a story teller to develop a closer relationship with the students; 3. to show students that reading can be instructional and fun at the same time.

It was only after the Evaluation Period, October 1967 through January 1968, that we knew that Paddle-to-the-Sea was a book suitable for use as a basic Great Lakes unit, as well as appropriate for amplification and enhancement as a good story.

MATERIALS

Like other MATCH Boxes, the Paddle-to-the-Sea Box has an abundant variety of media:

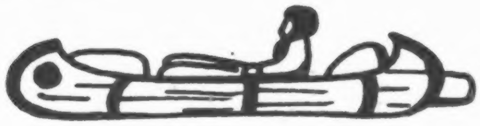
Audio-visual:

- filmstrip of most of the illustrations from the book, Paddle-to-the-Sea
- filmstrip to accompany a recorded conversation with Capt. Inches.
- films about river logging and the huge bulk freighters
- records of nature sounds of the region, songs of the voyageurs

Printed Material:

- three copies of Paddle-to-the-Sea by Holling C. Holling
- Great Lakes Country by McKee
- various industrial and regional pamphlets for reference and pleasure
- nautical charts of the entire region as well as Lake Superior, itself
- photos of an actual breeches buoy and the Whitefish Bay lighthouse.

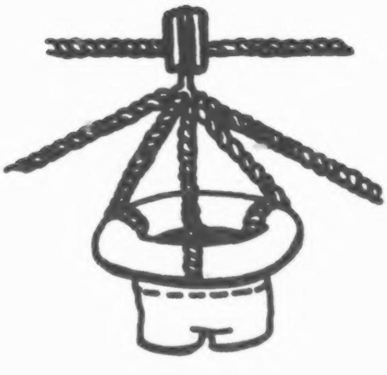
Realia:



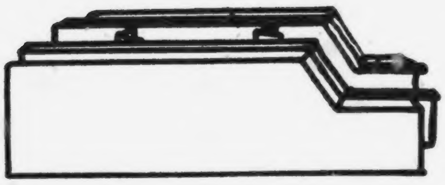
A hand-carved model of Paddle

ore and wheat samples

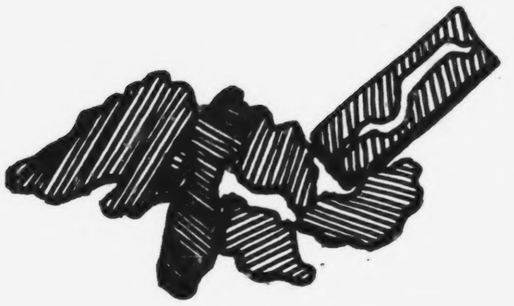
an assortment of real beach castaways



a scale model of a breeches buoy

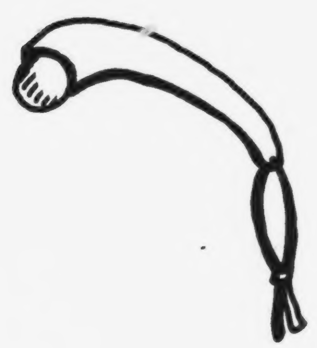


a scale model of a canal lock

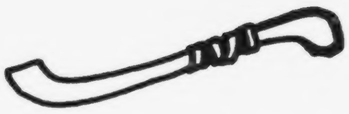


plastic, scaled templates for each of the five Great Lakes and the St. Lawrence River

a map-measuring device



various French and Indian trade items mini fur pelts, an iron tomahawk pipe a model birch bark canoe, colored seed beads, trade mirrors, Indian corn, sunflower seeds, wampum necklace, ball-headed club and feathers, bear-claw necklaces, and tri-color sashes for "dressing the part" of French traders



an Indian knife called a "mocotaugen" by the Indians

a pine log

X

Package:

- two wooden crates partitioned for easy selection and replacement of the objects

APPROACH

The Paddle Box was designed for use over a three-week period. Most of the lessons take only one day, but some require two days: Collage, which is a continuing activity after its initial two day construction period; Breeches Buoy, which included measuring Paddle's journey and learning about canal locks; and Beads and Beavers.

An important aspect of this Box was whether a story could hold the attention of 4th, 5th, and even 6th grade students, and whether it could also convey social studies information. We were also curious to learn whether this unit would be considered central or supplementary to most social studies curricula.

Many of the activities depend upon the teacher's knowledge of group dynamics,and skill in circulating among her students. We wanted students to be able to absorb information at an individual rate and level. We felt that verbal participation by the students would provide the teacher with sufficient insight into their learnings so that a test would not be necessary.

We wanted the classroom atmosphere, in general, to be low-keyed, a special time of sharing between teacher and students, and among students. And most important, we wanted the activities to be real and physically active.

GENERAL FINDINGS

Because of the complexity of the story, it seems appropriate to include a description of each lesson to explain the general findings on approach, media, and activities.

Lesson One - Dreams: (Introduction to the unit, the book, and having the teacher be a Story Teller. After the reading, students examine a pine log, a crooked knife used by the Chippewa in wood-carving and canoe-making, and the carved model of "Paddle". There is a class discussion of dreams and where they can lead.) Most teachers felt the lesson went smoothly, that initial interest and response were very good, commenting that the students were "fascinated by seeing the pictures on the screen as I read." Children in all classrooms were very impressed with the carved model, eager to learn if he was the real one!

Lesson Two - Logs: (One deer antler, a beaver-chewed log and the film, River of Wood, used as clues for Paddle's next adventures. The students speculate before finding out what actually happens, and then discuss their speculations.) Teachers made comments such as: "Today's session went very well" ... "class particularly liked speculation about clues". Several classes requested second viewings of the film. 74% of the teachers felt it was excellent and very educational. The word "interested" is found in almost every description of this lesson. Active discussions resulted in many classrooms from the encounter with the deer antler and the beaver-chewed log.

Lesson Three - Collage: (Students begin working on a 4' by 8' map of the Great Lakes Region, after the reading. The collage becomes encrusted with pictures, objects, names, dates and almost anything else that expresses the meaning that the story and the Region holds for the class. Work on the Collage continues, daily, until it traces the class's own journey to the Sea.) All classes participated enthusiastically in work on the Collage, in spite of problems with the initial setting-up of the map. The lakes and rivers templates were examined by all classes, but their successful use was dependent upon the general level of map skills. It appears that most teachers needed more concise information on setting up the collage, organizing it, and having readily available facts and figures for student research. The two class copies of Paddle-to-the-Sea were used extensively for reference, especially the illustrations, which were used as guides for making miniature models of materials.

Lesson Four - Long Ships: (Students examine ore and wheat cargo samples and see a film, Long Ships Passing, about the enormous bulk freighters. Afterwards, the class goes outside to measure one of these huge ships by forming its outline - 730' long, 65' wide.) The students liked handling the cargo samples, enjoyed measuring the long ship out-of-doors, and were eager to discuss shipping, cargoes, and workers. One teacher cited this lesson as having sparked interest in a student long considered hopeless. Many teachers said their students were awe-struck and impressed by the film.

Lesson Five - Breeches Buoy: (Students assemble a model of a breeches buoy, without written or oral instruction; use a mileage wheel to measure how far Paddle has traveled; learn how a canal lock works by operating a model. Each child has an opportunity to try each task.) Assembling the breeches buoy was a favorite activity because it was challenging and the students were allowed to do it themselves. Most teachers felt the information provided (chart and photo) was adequate, and several mentioned that students relied on illustrations in the book. The mileage wheel caused difficulties because the students couldn't keep the wheel heading in the right direction, and time for experimentation was limited. The lock model was not included for the Evaluation, but teachers improvised and managed to teach the working of a canal lock. Having three simultaneous activities within a large class appears to work poorly. The activities, individually, are good, but when combined, they seem to cause too much noise and confusion.

Lesson Six - Captain Inches: (This is a Special Installment, quite apart from the story. Students listen to the record "A Conversation with Capt. Inches" and view a filmstrip about the Captain, his ships, and the Marine Museum at Vermilion, Ohio. They then write letters to him, if they wish.) There was difficulty with the quality of many of the records, causing many classes to lose interest. The filmstrip was greatly enjoyed, and the majority of teachers felt it should be coordinated with the record, rather than supplementary to it.

Lesson Seven - Castaways: (Students handle and examine many objects commonly found on beaches, trying to imagine the journeys of these castaways, and then write stories about them.) 95% of the teachers said this lesson worked very well and that great interest was shown in the castaways. In several classrooms, students were stimulated enough to bring in "castaways" they'd collected for class-mates to examine and enjoy.

Lesson Eight - People: (Through role-playing, the students recreate situations where people decide whether to keep Paddle or help him on his journey.) 85% of the teachers said their students did learn something real about choices and human values through the role-playing. "All showed some indecision about keeping Paddle, but the good won out and Paddle was always returned to the water." The carved model of Paddle was used in most classrooms as a prop for the skits.

Lesson Nine - Beads and Beavers: (Students divide into small groups of Chippewa Indians, Huron Indians, and Frenchmen, all bartering beads for beaver pelts and cooking pots for corn. A class discussion afterwards reveals the monetary and utilitarian values of the objects for each group. Emphasis is given to how the value of a thing is determined; namely, "What is a dollar worth? What is a person worth? What is a dream worth?".) This was a favorite activity because the students could actively participate. It appears that only when the students thoroughly understood their roles could they successfully act out the trading session. The trade items were special favorites with the students, and most teachers felt we provided enough. The role cards were adequate in establishing the trading objectives, but teachers felt more were needed, one per child.

Lesson Ten - The Sea and Beyond: (The story ends as Paddle reaches the sea and the young Indian learns of it. There is time to talk and wonder about the journey. Plans can be discussed for making and launching voyagers. The collage is reviewed, and displayed for others to enjoy.) The summary remarks of five teachers indicated that their classes were touched by the ending of the story, and the unit. Many classes indicated that they wanted to launch voyagers, but to date, none have been received by the Children's Museum.

General Issues

Teachers were generally positive and enthusiastic about their teaching experiences with the Paddle-to-the-Sea Box. Seventeen teachers reported a high degree of personal satisfaction derived from using this Box. A majority opinion was that the Paddle Box brought the teaching of the Great Lakes Region alive, and that it motivated students to take an active part in each lesson, reaching many students who disliked reading or who were non-verbal. Only four teachers felt the Box required too much time.

Eighty-four percent of the teachers rated the Paddle Box average in difficulty level for their students. Eighty-four percent also said the learning outcome for their students was well worth the time and effort required to use the Paddle Box, and that interest in the subject was more than usual. In regard to the degree of learning, 37% felt it was very high, 48% felt it was high, and the remaining 15% felt it was average.

There were many significant positive changes in the relationship between teacher and students:

> "I was more conscious of their reactions to lessons. I see the value of living the lesson."
>
> "In informal situations, I was able to get to know the children better."

Thirteen teachers felt that cooperation improved, finding:

> "an actual change in attitude toward school as a whole in many cases"
>
> "that students took great pride in their work"
>
> "that participation helped the inhibited ones".

Most teachers were impressed with the materials and activities, although there were a few problems with objects - such as the templates, the mileage wheel, and the breeches buoy - teachers generally remarked that the materials were well-suited to the subject matter and the activities. As one teacher said, "Pupils showed interest - really looked forward to the Box every day, and were motivated to do extra work."

Many teachers commented that the work in the collage was the highlight of the experience because the students were eager to make or bring in contributions. All teachers reported that their classes were free to work with the materials at times other than lesson time, and that there "was a great incentive to finish 'school work' " so they could work on the Paddle Box. A few teachers felt that the geographical concepts needed to be reinforced more fully, and that their students found it difficult to assimilate all the segmented information.

Approach

Eighty-four percent of the teachers used the Paddle-to-the-Sea Box as described in the Teacher's Guide. An average time spent was 13 class periods. A majority felt the installment approach was well-planned and worked well. As one said, "it would be very difficult, even for experienced teachers, to 'get in' all the learning and experiences without this Guide". Two teachers noted that the depth and variety of the installments kept the interest so high that the students were surprised with each forthcoming installment.

The story captivated most of the classes, and all teachers said they thought Paddle-to-the-Sea was certainly good enough to sustain the unit. Five teachers said that the Box brought a new approach to their teaching of social studies.

> "Both the children and I realized that we learned something, and enjoyed doing it."

> "made a resolution to start collecting materials in geography to make it more meaningful."

> "delighted by the variety of learning experiences that took place: map work, mileage computation, songs that were well integrated."

Testing

Only 21% of the evaluating teachers felt testing was needed. These few wanted tests specifically in geography and history, because they found it hard to judge what the students were gaining. But the remaining 79% said things like:

> "Never clutter this happy experience with a test - or even a book report."

> "Through the many discussions, it is easy to discover what is being learned."

> "The learning that has taken place will remain because of the interest shown."

Relevance to General Curriculum

Fifty-three percent related the Paddle Box to specific parts of their curriculum, noting that it would be excellent for a study of Canada and the North Central states. Seventy-nine percent said they would certainly like to use this Box again - especially if available at exactly the time when their Great Lakes Region unit is taught. But 58% said that the Box should be used as a supplementary unit, although they wanted to see more social studies curricula built around units like the Paddle-to-the-Sea Box.

Loanability

Only one teacher commented on the weight (98 pounds) of the two containers. There are 81 separate items to be checked before subsequent use, but only a few objects require much repair. There are no expendable items.

DISCUSSION of GENERAL FINDINGS

It appears that the technique of using a story as the basis for a social studies unit is not only acceptable but motivating to most teachers. This statement must, however, be tempered by the fact that not every story has the structure or complexity to sustain its being amplified. Holling's stories present many real activities and real materials which captivate children. Perhaps future research will reveal the components or criteria for selection of such a story.

Teachers liked the installment approach as it tied to Paddle-to-the-Sea, although many remarked that the segmented information caused them some grief. Most teachers prefer to teach natural resources in more depth; though our unit could only skim the surface, it presents a flavor and essence not found in average units.

The word "alive" was used frequently by the teachers in the evaluation forms, - the Box experience made the book, the Great Lakes Region and everything about it live. Bare facts about tonnage mean nothing to a 12 year-old, but measuring out the 730' that a ship measures does captivate them.

The Paddle Box experience reinforced the idea that students respond when something physical and concrete is happening. They want to be active, and they want to be doing meaningful things. Students also responded intently when they felt their contributions would be well received. It may be a nuisance for teachers to keep track of all the "junk" that kids want to bring to school, but isn't it good to have a child want to participate by contributing stuff?

The Paddle-to-the-Sea Box provided opportunities for discussion in almost every lesson. We wanted the teacher to assume a new role - story teller - but we also wanted her to become a listener. Children have much to tell and share. We were amazed at the amount of interest in the deer antler and beaver-chewed log, for instance. We thought of them as fairly limited objects, but they stimulated some of the most interesting and involved discussions! In Pennsylvania tryouts, many teachers reported that their students had never encountered beaver except in books, but that most children were intimately familiar with deer hunting.

As stated previously, this Box started its developmental period in May, 1967, so we were unable to have classroom tryouts for most of the activities. This fact certainly colored the information derived from the questionnaires - we really didn't know the quality or depth of questions to ask. Future evaluations and observations will add to the knowledge of how students interact with the various objects. We can only conclude that students liked the breeches buoy, the trading items, etc., but we are at a loss to be more specific about their involvement, or variations in method which might improve the encounter.

The one piece of media that caused the greatest comment and interest was the wooden carving of Paddle. We are very glad that we decided to have it made. The tale itself is captivating, but this carving appears to be the catalyst which brings the unit to life.

RECOMMENDED CHANGES

We do not suggest any major changes in the approach, media and activities of the Paddle-to-the-Sea Box.

APPENDIX
Box Report Summarized
The MATCH Box Press

MATCH Box Project
U.S.O.E. Contract No. OE-4-16-019

FINAL BOX REPORT

MATCH BOX PRESS

BY MARION CAREY
SUSAN SCHANCK

BOX DEVELOPED BY SUSAN SCHANCK
MARION CAREY

PROTOTYPE COMPLETED 1967

SECTION I: GENERAL FINDINGS

OVERVIEW of BOX

What the Box is about

The MATCH Box Press was designed to give children in the fifth and sixth grades some idea of the amount and nature of the human effort that lies behind the printed page. Printing a book seemed like a good way to do this. The MATCH Box Press is a portable publishing company which can be moved from class to class, being staffed in turn by one group of children after another. The Museum is considered the Home Office and each class that uses it writes, designs and prints a book. We want children to develop an interest in books that extends beyond the story between the covers. We hope to spark an interest in other things basic to books - interesting dedications, title pages, layouts, type faces, and others.

The topic had a natural versatility in relation to the rest of the curriculum, which increased its value in our eyes. Though the Box is not concerned with any particular subject, it deals with a process which is related to many facets of the curriculum. For example, in the first week when the children are writing a manuscript, it provides a language arts experience. In the second and third weeks while the children are printing their book, they are practicing one of the vocational arts. Printmaking techniques, used in illustrating the manuscript, are valuable additions to a child's experience in art. Finally, the fact that the students learn how a publishing company operates and discovers many of the problems of labor and management, makes the Box valuable as a Social Studies unit as well. Any area of the curriculum might become the source of the subject for the book the children publish. The choice would be up to the teacher and class.

Assured of the value of the idea, we set about developing the MATCH Box Press into a Box which would give a class a chance to work cooperatively on a project. The teacher would be the overseer and guide, rather than director of her class. She would learn along with the children. The class project would have a tangible and permanent product - a book. Each class member would keep a copy of the book and extras would be printed for the school library and other interested people.

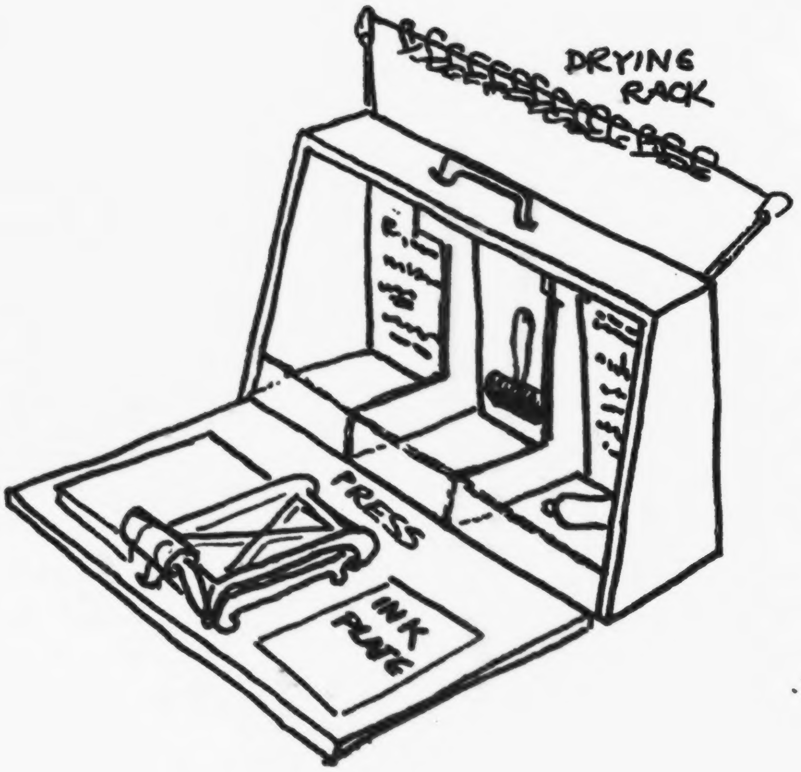
We tried with the Press Box to give the children an experience close to the way real books are written and printed. A Box of this sort presented certain interesting design problems. Printing a book is complicated. There are many steps to follow. Could a Teacher's Guide and Student Handbooks convey the details, the many hints that stand between understanding and skill? Would two weeks be enough time for a teacher and class to use the Box no matter how inexperienced they were? Could a Box of this sort travel from school to school and remain intact? Was it loanable? We turned our attention to these issues in the tryouts. We knew that the materials had to be complete and the instructions simple enough for children to understand and follow. We found that the original two-week period had to be expanded later to three, which in some cases was still not enough. Special containers were needed to keep the type from spilling when the Box traveled. The tryouts showed that our problems could be solved, and we were on our way.

The Materials

The materials in the MATCH Box Press come in three separate cases.

When the large case travels it holds:

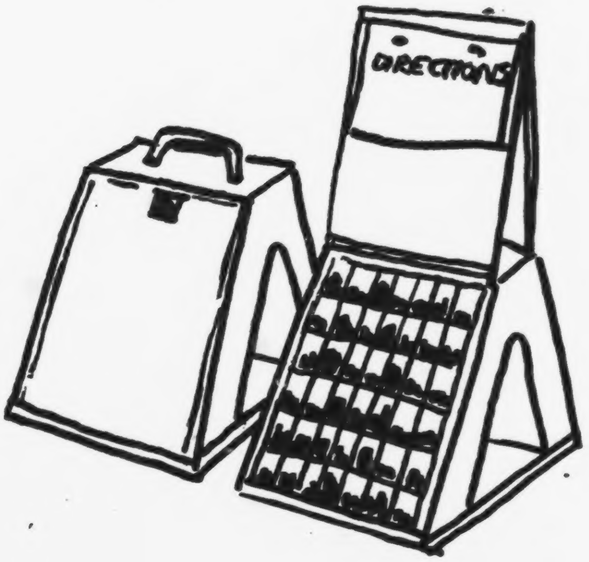
- the press
- ink plate
- brayer
- drying rack
- Keeptrak, a device which holds the paper and keeps the tasks of printing organized.
- a film
- the Teacher's Guide
- student handbooks
- materials for making block prints



When the case is opened it becomes the print shop.

The two small cases hold:

- the type
- galleys
- composing sticks
- instructions for setting type



When these boxes are opened they are used to set type for the book.

How the Box Works

The MATCH Box Press is used in a classroom for three weeks. During the first week the children are authors, preparing and editing the manuscript. For the remaining two weeks they are the staff of a publishing company designing, printing and illustrating the book. The teacher's role is that of publisher. She oversees the preparation of the manuscript and assists with the composition and printing. The children set type by hand, use a fundamental press, and illustrate the book by using simple print-making techniques.

Preparing the manuscript: The children as the authors and editors, are introduced to the publishing world through a film "Story of a Book". They learn how a real author gets his ideas for writing and illustrating a book. The book the children see in the film is Pagoo by Holling C. Holling. A copy comes with the Box. The children examine this book, look at the dedication, copyright, and title page, and discuss books and how they are made. After deciding what their book will be about and choosing prose or poetry, the manuscript is written, and the title and dedication are selected. The layout and arrangement of pages is worked out and a dummy of the book is prepared, showing what is to appear on each page of the final book. Then the information is transferred from the dummy to Keeptrak so the whole class can see at a glance how much has been accomplished and how much remains to be done once production on their book is underway.

Production of the book: For this two-week period the class forms three departments: printing, composing and art. Each department has a manager, its own equipment and individual jobs. Although the departments function independently it is necessary that all three cooperate to produce 40 copies of the book.

For each department there are special training tasks to learn about the materials and their uses. As production gets under way, the printing department receives galleys of set type from the four composing department groups who are hand setting the manuscript in type. After a page is printed, the type is returned to the composing department where it is washed and redistributed. These two departments must coordinate their work very carefully. Meanwhile the art department is preparing blocks which will be used to illustrate certain pages. Illustrations are printed by hand, not on the press.

When the book is half finished a staff meeting is called to discuss work procedures and to give staff members a chance to change jobs from one department to another. The three departments continue to work together until the book has been printed. Then there is a general clean-up and the whole class assembles the book and binds it by simply tying the pages and cover together with a cord. Each child in the class gets a book and there are extra copies for the teacher, school library and always one to send back to the home office of the MATCH Box Press.

The teacher may have the book copyrighted by filling out the copyright form which is enclosed in the Box and sending the completed form to Washington, D.C.

FINDINGS

Teacher's Experience

The MATCH Box Press was favorably received by the 18 teachers who evaluated it in the fall and winter of 1967-68. They found that the materials held class interest at a high level. They felt that they were well organized, neatly packaged and enjoyable to use. The majority reported that their personal satisfaction in using the Box was "high to very high".

The most interesting findings involve the view of the teachers regarding their relationships with the children. Teachers who began the evaluation of the Press Box within three weeks of the opening of school in the fall were amazed to discover how a class project early in the year brought out personalities, abilities, strengths and weaknesses in their children that often remained undiscovered until very late in the school year. Comments of individual teachers support this opinion:

> "We worked on a less formal, more personal level."
> "I had the opportunity of better knowing my children."
> "My relationship of these pupils today (October) is that which takes me until April to establish other years."

Seventy-five percent affirmed that the major outcome of the Box experience involved group dynamics. There was a clearer definition of peer relationships. The pupils developed real appreciation of the strengths among them. They learned how to work together. The department managers worked well. There was more difficulty with managerial relationships in the Composing Department than in the other two departments, probably because there are more separate and distinct tasks to be accomplished by this department. In several cases the rapport established between teacher and pupils and among pupils made producing the book a secondary accomplishment or "side effect." Although many teachers were surprised to discover this rapport developing between them and the children, they all heartily approved of it. None mentioned that this resulted from an interaction of children and things but several admitted that the closeness, recognition and appreciation of one another would not have developed without the project.

Two-thirds of the teachers who used the Box had not worked with groups and at first were disturbed by the confusion. Some teachers remarked that they were surprised at "how much the groups of children accomplished working by themselves". One teacher said, "In general the children understood the group organization more quickly than I did". Another said, "I felt there was a minimum of harassment as compared with some other projects we have done".

Teachers had two major criticisms of the Box. First, the time period (three weeks) is much too short if teachers are to work with the Box for only an hour a day. One week for preparation of a manuscript was not enough and a number of teachers found they ran over into the second week. This immediately caused a time shortage in the production period which in some instances led to frantic pushing to meet deadlines. The daily clean up took additional time which also aggravated the time problem, especially in classes with poor department managers.

The second, a very major complaint, was a shortage of type. All 18 teachers suggested that more type would have eliminated many problems that resulted when the composing department ran out of a certain letter or two. The teachers who complained that the workload was poorly distributed found that holdups occurred in the Printing Department while the printers waited for the typesetters and more often holdups developed in the Composing Department while the typesetters waited for type to be cleaned and redistributed.

Half the teachers said the Box interfered with other curriculum commitments yet all but two teachers rated the relevance of this experience to the curriculum as high. Some teachers who used the Box just before the Christmas holidays found school activities - plays, pageants, etc. - interfered with the continuity of the Box. Other teachers working with the Box found the Box a valuable addition to the pre-holiday preparations. They incorporated seasonal stories, poems and illustrations in their books.

Children's Experience

The children enjoyed using the Box. In most cases they were eager to write something that would be printed. Most children really wanted to do a professional job as authors and took this role seriously, even if they could not fulfill it. Some children became experts in a particular phase of the work - such as typesetting, redistributing, cleaning type, or making block prints.

The children, through their work with the Press Box, gained in self confidence, and succeeded in gaining recognition from their peers. Several teachers reported that the children seemed kinder to one another and far more appreciative of individual contributions. Under-achievers in regular school work often found a niche in which their latent talents shone and they excelled at their particular jobs. Here is one report which clearly reflects this finding:

"Wayne had much difficulty completing school tasks and has had many problems during his school career. He became strongly interested in distributing type and assumed responsibility for this job in his group and laboriously worked away long after others had lost patience. Following his example in accuracy, other children began to be more careful. He gained much self respect as a result of this project."

All the teachers found the children examining books more closely - looking for dedications, title pages, copyrights, etc. The teachers report that the children are more aware of the complexities involved in producing a book. One teacher sent us this quote, made by a member of her class: "The guys who print the dictionary sure must work!"

The Box sustained high interest throughout the three-week period in 14 classes. Three teachers found the children's interest seemed to lag in the middle of the period and one teacher reported that class interest varied from day to day. Two teachers mentioned that the work in the Composing Department became a bit tedious after the first week.

The teachers and children, in general, were pleased with the outcome of the project, and felt it was worth the effort. Two of the evaluators found the experience "too much of a manual activity from which to gain much mental growth", although both found the experience enjoyable. One teacher reported that his class "might have gained the same insights into the printing process with a smaller task in printing".

Although twelve teachers said they would like to use the Box again with a new class, half of them would modify the methods and plan a smaller production the second time. Six teachers would use the Box again with the same class. This is a significant finding as teachers rarely reported in other Boxes that they would use the Box with the same class. One said "By using it again in the late spring, the Press Box could be integrated into the curriculum for language arts - publishing a year book - a chance to compare fall and spring productions." The feeling of those who chose not to use the Box again with the same class can be summed up by this quote - "No-- it's like a vacation you took that was too short and you wanted to stay another week. When you went back later, it wasn't quite such a great experience as the first time and you feel let down - I would rather repeat the use of the Box with a different group." We feel they did not foresee the possible extensions - most felt it was printing for printing's sake - and therefore did not wish the Box again with the same class.

Box in Use

There were no problems with any of the printed materials, so we assume the Guide, Handbook and instructions cards are easy to follow. The instructions worked if they were followed, but sometimes they weren't.

The Box is loanable. It travels well and remains intact. However, it requires considerable checking and replenishing between uses. It does get inky and a small percentage of type is lost on each trip. There is a great deal of expendable material in the Press Box - paper, ink, cardboard, printmakers plate, cover stock and cord. Replacing these items each time the Box is loaned is expensive.

The copyright forms we placed in the Guide have been used. We have heard from two teachers that their forms have been authorized and the books are actually copyrighted!

DISCUSSION and CONCLUSIONS

The books vary. Some are almost professional in their selection of art work. Others have smudgy prints that defy recognition. The writing in some is great, in others very mediocre. In most cases the illustrations coordinate nicely with the written material on the same page. The printing is good. Here and there we find crooked and uneven lines, but in general the pages are well laid out and quite impressive. There are surprisingly few typographical errors. The books are much more than gay covers, amusing stories, and child-like rhymes. They are tangible evidence that a real life activity, a process, can be taught in a classroom by means of simple, written instructions and easily manipulated materials. The books have a special feeling about them. The pride of accomplishment is sensed by all who see them.

Another significant end product of this Box are the relationships which developed while the Box was in the classroom. Children learned to react to their classmates in a better way - kindness, appreciation, praise, acknowledgement are words teachers use often in explaining how the social situation changed in their rooms. Teachers learned about their children while the children were learning about printing. The responses concerning class relationships during the Press experience were so positive that we wonder if a class project of this type would not be a great way to start off the school year. Teachers might discover latent talents that otherwise would remain hidden all year. Underachievers might be given the spark that would take them off the side lines. We did not, in designing this Box, fully anticipate that such positive relationships would develop. However, they certainly demand consideration as one of the greatest results of the Box.

In designing the Box we assumed that teachers would see it as a valuable addition to different parts of their curriculum. However, from the reports of most teachers we got the feeling that it was perceived solely as a tool for language arts. We should clarify how the Box can be related to many areas of the curriculum in the Teacher's Guide. For example, in science, the children might make leaf prints, or cut block prints and write a paragraph to explain the drawing. A library research report in history would be more exciting if the children knew they could print it.

Our teachers reported that children were motivated to write more carefully when the final copy would be printed. Perhaps this is an argument for putting a Press Box in every school. As a permanent fixture in a school, a teacher could spread the effort of making a book over several months and do a very professional job. One grade might write and print invitations to school affairs. What parent could refuse to attend the P.T.A. when Johnny brought home an invitation that he had printed by hand? Another grade could report school news several times a year. An individual child might write something specially nice and print it when it was his class's turn to use the press.

We see the Press Box as a tremendous asset to any school if they owned it. It would remain portable, with some extensions and modifications and travel from class to class. There would be an opportunity to critique and select materials which is not possible now with the time limits imposed on the Box. Underlying the teachers' complaints about the time is a feeling that the best writing and best printing is not shown in the book because the children have been rushed. Many problems, however, could be eliminated if a printing outfit was always available.

In summation, the Box works well, was enthusiastically received and needs only mechanical changes to improve it, such as adding more type. Turning a classroom into a publishing company is exciting in itself, but to be able to hold a book in your hand and know that a little fellow with an I.Q. of 70 said, as he set type for that book, "I may not be so good in the subjects, but I'm real good at this" makes the whole project worthwhile.

APPENDIX E

Sample Pages from Teacher's Guides

These samples from the Teacher's Guides were chosen to show a variety of ways of communicating the Box to the teacher.

E-1 ESKIMO - Gr. 3 & 4: Lesson 6, "The Camp"
Here is an example of a tightly organized lesson plan with a precise focus and a detailed suggested procedure. What happens within the lesson's structure is quite spontaneous and free.

E-2 IMAGINATION, Gr. 4-6: "Faces Speak"
This excerpt illustrates a brief, pithy activity which guides the teacher but leaves her and the children with a free hand.

Some Boxes communicate lesson procedures directly to the children.

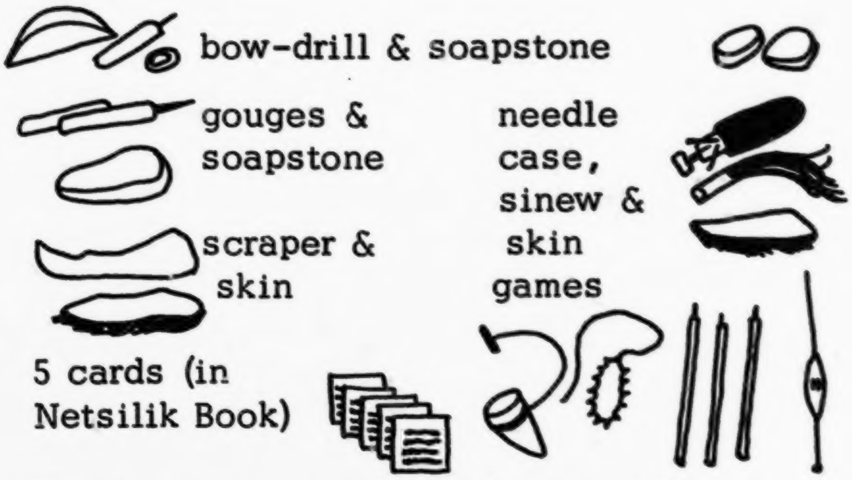
E-3 JAPAN, Gr. 5 & 6: "Setting Up House"
In this lesson plan from the Honda Family Guide, the "father" of the Honda Family is told how to guide his family through the day's activity.

E-4 PRESS, Gr. 5 & 6: "Training Course"
In these instructions from the "Production Division Handbook", the Manager of the Composing Department is instructed about assigning jobs to the people in his department.

6. THE CAMP

FOCUS:

The Netsilik making what they need to live from materials in their environment.



Teacher -- Open 4th packet in Book.

ACTIVITIES:

Learn what happens at the winter camp.......

We hope that by trying out these activities the children will learn to appreciate some of the ingenious ways the Eskimo makes use of the meager materials in his environment. The seal in particular is used for food, clothing, shelter, and play.

SUGGESTED PROCEDURE

Get things started by asking the class to recall the Seal Hunt film with its flashbacks to camp doings. What was happening at camp?

Help the youngsters to concentrate on the things the Eskimo uses from his environment by posing questions like:

- Have you seen the Netsilik using any store-bought things? (No, except the raw wood and steel for tools that are bought or traded for from trading posts.)
- What can you conclude from this? (The Netsilik probably don't have stores; they probably have to make their own things.)
- What could the Netsilik use from their surroundings to make tools, houses, clothing, toys, etc.? (animal skins and bones, stone, driftwood; the steel and wood they buy.)

Point out that many of the things done at a winter camp use parts of the seal, or are derived from seal products. Suggest that the children keep on the alert for seal products; we will go into some detail on the seals usage in camp activities.

bow-drill &
soapstone
gouges &
soapstone
scraper &
skin
needle case,
sinew & skin
games
cards in
Netsilik Book

Choose three areas in the room:

- for men's work (bow-drilling and gouging in soapstone)
- for women's work (scraping and sewing)
- for children's play (spinning bullroarer, etc.)

Place the materials and the explanatory cards (found in the Netsilik Book in the fourth packet) for each activity in the proper area. Newspapers placed under the drilling and gouging will save you grief.

First have two groups of girls do the women's work while two groups of boys do the men's work; let a fifth group try the games. Rotate the children among the activities as you see best. Eventually all the children should have a chance to try each activity. If you don't have at least an hour, we suggest you not rush the children through all the activities; rather, extend this lesson into a second day, or let children do the activities in spare time.

2. Discuss uses of the seal........

Ask individual children to bring the materials for each activity to the front of the room, and point out what they had to do with seal, if anything. (Cards used for each activity have this information. You might want to mention other things from the environment that are used, such as caribou bone for tools.)

Ask what other ways the Netsilik might use the seal. (meat and inner organs for food) In the Netsilik Book under "Uses of Seal" is a chart of many other things the Netsilik make from the seal. Perhaps your class would enjoy making a large chart to hang up in the room.

(Note: Along with the other camp activity materials in the seal skin is a bag of seal flipper bones. Several games are played with these bones.

(See Bone Game" card in Netsilik Book.)
Introduce them whenever you wish for free time use; you may need to explain the game.)

Points that might come up in discussion:

- Why do the Netsilik hunt more seals in winter than seagulls or fish? (seals have fur, blubber, are bigger, etc.)
- Imagine a store being opened at Pelly Bay. What changes might occur in camp work because of the things in the store?
- What things do your parents make, instead of buying them ready-made?

FACES
SPEAK

Idea:
Meaningful communication can, and frequently does, take place on a non-verbal level. Faces can "tell" us as much as words can, maybe more, sometimes. In order to make this point, have your pupils look at several pictures of a little boy and of an older man. This then leads into a discussion of the feelings portrayed in these pictures. Out of the discussion, the children can create (singly or together) stories which have their genesis in a given picture or pictures.

Materials Needed:

from the Box

pictures of a child and of an older man, both holding various expressions.

Procedure:
1. Put one picture of the child at a time in front of the classroom and ask your class how they think the child in the picture is feeling and why he might be feeling this way.

2. After you have done the above with all the pictures of the child, do the same with the pictures of the older man.

3. If you wish, have some of the children imitate some of the expressions and see if the others can guess which expression is being imitated.

A P P E N D I X E-3
Sample Pages from Teacher's Guides
Japan

Lesson 3

SETTING UP HOUSE

家具の取り片付け

Today your family will learn about Japanese shoes. You will also make the floor mats for your family room.

In this lesson you and your family will work independently of the teacher. Read the directions in this book to yourself; then tell your family what they should do. Do all the activities in order, and make sure you finish the lesson today.

STEP 1

Stand the chart up on the table where everyone in your family can see it.

Have your family look at all the shoes, and try them on for a few minutes.

Be sure that you can find all the things that are shown in CHART 1.

STEP 2

Have your family look at the house floor plan in CHART 2. Ask them how many different kinds of materials the floors are made of.

STEP 3

Have your family try to answer this question: How many times would a Japanese woman have to change her shoes if she came in the front door, put her groceries down in the kitchen, and went back out the front door? To do this they will need to use the information in CHART 3. Have a family member write your answer on a separate piece of paper. Tell which shoes she would have to wear in each room.

LESSON 3

STEP 4 To use the shoes properly, you will need to make different kinds of floors to practice on. Before you begin ask your teacher how much floor to make.

To see how to make floors look at CHART 4.

STEP 5 Have your family study CHART 5 and learn the proper shoe and floor manners.

Place the chart so that you can see it from your paper floor.

Have each family member walk from cement (classroom floor) to wood to a mat using the correct Japanese shoes and manners.

Have the rest of the family watch to make sure he is doing it correctly.

HOMEWORK If your family members have any Japanese shoes at home ask them to bring the shoes to school. Then more people can wear shoes at the same time.

TRAINING COURSE

MANAGER:

Call a meeting of your department. Assign the following jobs to each group:

1. Set title ----------------- Red Group
2. Set author's name --------- Pink Group
3. Set school's name and address -------------- Dark Orange Group
4. Set dedication ------------ Light Orange Group

The first three groups will give you proofs of the words they set. The Art Department will use these proofs when they are planning the cover and title page. The dedication page will have no artwork.

STAFF:

There are four basic jobs in the Composing Department. They are: setting type, making proofs, cleaning type, and distributing type. Today you will all do each job.

But, since you cannot all start at once, decide which two people in each group will set type first. As soon as the first two people have finished steps one and two, two more people can start.

READ ALL THE INSTRUCTIONS CAREFULLY BEFORE YOU START.

1. Check the dummy to get the correct wording of your assignment.

2. Red group uses 24 point Bodoni Bold, and the others use 14 point Century Schoolbook.

3. Set the words which have been assigned to your group. Follow the instructions for setting type that are with the type case.

4. When you are finished, make a galley proof following the instructions with the proof press. If you find mistakes, correct them. When the type is set correctly, make several proofs and give them to the Department Manager. The Red, Pink, and Dark Orange groups should give their corrected proofs to the Department Manager.

5. Clean the type as soon as you are finished making galley proofs. Leave the type in the type holders in the galley. Run water

over everything. Scrub the type with the cleaning brush. Get all the ink off, and be sure to get it out of all the little holes in the type. When the type is clean, blot it and the galley with a paper towel. Put the paper towel under the type to soak up the water from underneath.

6. When the type is dry, distribute it to the type cases for reuse. But the last pair in the Light Orange Group should leave the dedication set in type for the printers to print tomorrow.

   Be sure to put each letter in the right hole upside down and backwards, like the piece glued in the corner of each compartment.

MANAGER:

You are responsible for seeing that each group has cleaned up their materials properly at the end of each period. NO TYPE SHOULD EVER BE LEFT WITH INK ON IT!!!

The Manager of the Printing Department will bring the Copyright slug to be cleaned. Return it to the Printing Department when you are finished.

1. Make sure that all the type is back in the correct compartment in the type case.
2. Put galleys, composing sticks, tweezers, bag of type holders and bag of leads back into the type case.
3. Have one person from your group help clean up the proof press. Wash the brayer and ink plate. Pack the brayer, ink plate, pad of paper and instruction card in the case.

OE 6000 (REV. 9-66)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION

ERIC REPORT RESUME

ERIC ACCESSION NO.

CLEARINGHOUSE ACCESSION NUMBER

RESUME DATE: 6-14-68

P.A.

T.A.

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TITLE
MATERIALS AND ACTIVITIES FOR TEACHERS AND CHILDREN: A PROJECT TO DEVELOP AND EVALUATE MULTI-MEDIA KITS FOR ELEMENTARY SCHOOLS, VOLS I + II FINAL REPORT

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RETRIEVAL TERMS

IDENTIFIERS

ABSTRACT

Much of learning is non-verbal requiring mediation by things and activities rather than by words. This project set out to study the role of real objects in the learning process and to discover principles for combining materials and activities in teaching/learning systems.

The approach consisted of developing and evaluating a series of 16 self-contained, multi-media kits known as MATCH Boxes. Most of the units are in elementary social studies - some in science. Built around specific topics MATCH Boxes contain various objects, films, pictures, games, recordings, projectors, supplies, and a Teacher's Guide to activate the unit. Boxes contain enough materials for a class of 30 to use for a two or three week period, and are meant to be circulated to teachers through material resource centers, libraries, museums and A-V departments. Activities stress child involvement and responsibility for learning.

The Final Report describes the MATCH Boxes, how they were developed and evaluated, how teachers and children responded to them. The MATCH Box as a mediating system, is analyzed and discussed and new applications of the concept are indicated.

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